VETERINARY MEDICINE

May, 1933

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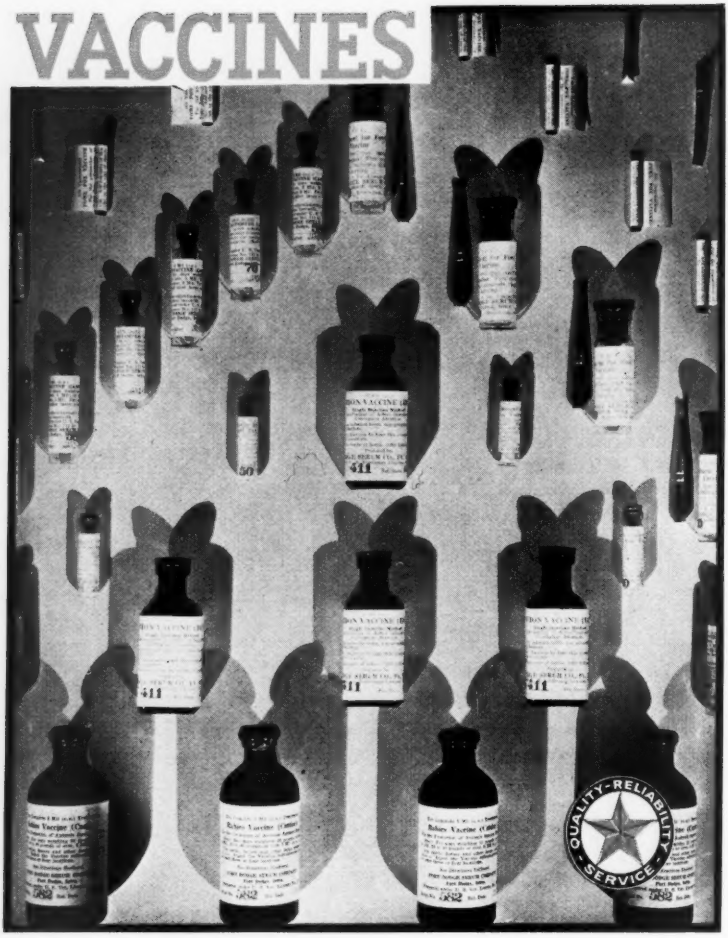
No. 5
VOL. XXVIII

75 E. Wacker Drive
Chicago, U. S. A.

VACCINES



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Veterinary Medicine

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VOL. XXVIII MAY, 1933 No. 5

Published Monthly by the Veterinary Magazine Corporation
75 East Wacker Drive, Chicago, Ill., U. S. A.
$4.00 a Year

Entered as second-class matter Nov. 8, 1920, at the post office at Chicago, Ill., under the Act of Mar. 3, 1879. Entered as second-class matter under the title of American Journal of Veterinary Medicine, July 19, 1910, at Chicago, Illinois, under Act of March 3, 1879.

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D. M. Campbell, Editor A. T. Kinsley, Associate Editor
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At the National Institute of Health in Washington, a vaccine has been made from typhus fever infected rat fleas, which protects guinea pigs from the disease and promises to develop into a protective vaccine for humans as well.

Wholesale delousing procedures and war on rats have kept this ancient plague of filth and poverty in check in the past. But these measures are Herculean in difficulty. So disease-fighters are now pinning their hopes of controlling the disease on the development of this vaccine.—*S.N.L.* 23:662.

The Lilly Laboratory for Clinical Research reports finding that isoamethylbarbiturate (sodium amytal) and sodium pentobarbitol (nembutal) are greatly superior to chloral hydrate, chloroform, morphine and all other antidotes heretofore used for strychnine. Death in strychnine poisoning is due either to exhaustion or to suffocation. The two drugs recommended, the investigators say, stop convulsions promptly and generally put the patient to sleep without interfering with the breathing. They may be given in large doses in strychnine poisoning without bad effect. The requirement for emptying the stomach, if there is a probability that any of the poison is not yet absorbed, remains as with older antidotal treatment. The Lilly Laboratory is far behind in this discovery. Horning and McKee announced it in the June, 1925, issue of VETERINARY MEDICINE.

CONTINUITY IN THE OFFICE OF PRESIDENT

I wish to point out at this time what I consider to be another weakness in organized medicine, which extends from our national organization right down to our County units. I refer to the election of a president for a term of one year. I realize, when I speak of this, that I am striking at old traditions. As it is now, a president comes into office and sees so many problems facing him that he doesn't know where to turn. And the reason he has so many problems is because his predecessor was not in office long enough to clear them up and they have been handed down, like the sins of our fathers, from one president to another. If we get a good secretary or treasurer, we keep him in office, and justly so. Real leaders are scarce now and if we occasionally get a real leader, who has some accomplishments to his credit at the end of his term, and he wishes to continue, keep him on. Very little can be accomplished in a year. If a business organization hired a manager for a year and he made a success of his job, it certainly would try to hold on to him and we should do the same.

I would recommend changing our Constitution, allowing the President to be elected for three successive terms.—*John J. Masterson, M.D., President's Annual Address Medical Society of County of Kings.*

Except in special cases, the double herd system for the control of Bang's disease is a failure, and, in most instances, the immediate elimination of all reactors and aborters will be found most economical.—I. E. Newsom.

Stalfors regards the Ashheim-Zondek test for early stages of pregnancy as unsuited for use with cattle. Kust states that pregnancy in mares can be regularly diagnosed by the inoculation of their urine or blood serum into immature female white mice. In 439 mares, the test was 100% successful. Pregnancy being recognized from the thirtieth day after conception in many cases and with certainty from the forty-second day.

The larvae of ascarids (*Belascaris*) have been found in the lungs and tracheae of fox cubs that were stillborn, and it is considered that this prenatal parasitism is by no means a negligible cause of the death of carnivores *in utero*. It is recommended that silver fox cubs be systematically dosed with capsules of tetrachlorethylene at three weeks of age and at monthly intervals thereafter. The danger from ascarids has passed at the age of three months, but treatment for *Uncinaria* should be continued longer.

In regard to raw meat propaganda, recent experiments have shown that, taking rapidity of hydrolysis as a criterion, meat, when raw, is in the least digestible condition. The most rapidly digested meat is that which is roasted or grilled until it is just red inside with a moist surface when cut. If the heating is carried beyond this point and the meat is definitely overcooked, the rate of digestion is slowed, but, unless the meat is actually carbonized, it even then appears to be more rapidly digested than raw meat. The decrease of digestibility in overcooked meat appears to be due to hardening and drying of the protein.—Editorial, *Jour. Amer. Med. Ass'n.*, June 13, 1931.

Velich (Prague) reports observing a billy goat that secreted an abundance of milk. This billy goat was regularly used for breeding and had sired some hundreds of kids. The composition of the billy goat's milk was similar to that of a she-goat. This billy goat produced as much as 750cc of milk daily.

Synovial fluid is a secretory product and not an extravasation or exudation from blood vessels. Synovia contains mucin which is a secretion of cells in the synovial membrane. The mucin is an important constituent of synovial fluid acting as a lubricant. Motion of the joint stimulates mucin production. Inflammation disturbs the balance of mucin in the synovial fluid as well as other ingredients.—Bio. Abst., 21751-1932.

Horse auctions are held twice weekly in the stables in the area east of Third Ave., between Eighteenth and Twenty-Fourth Streets, New York City. The sales amount to about 100 head per week in summer and 200 in winter. At these auctions, ponies bring up to $75.00 and Shetland and Piebalds sometimes $100.00 and $150.00. Draft horses sell for from $100.00 up. Saddle horses are off in price. Animals that would bring $450.00 five years ago, now sell for half that sum.

The Ohio Agricultural Experiment Station undertook to find a practical, inexpensive method of increasing the vitamin D content of milk. Irridiated ergosterol was fed to cows. It proved an effective but expensive procedure. Next, a cod liver oil concentrate (Vitex) was used. It increased the vitamin D potency of the milk eleven-fold, but even this increased potency was far below (one about one-fifth) that recommended for milk that is to be used as an antirachitic agent for infants. Furthermore, the cost of Vitex eliminates it as a vitamin D supplement to be fed to cows. The Vitex preparation did not reduce the butter fat production as does cod liver oil when fed to cows.

ETHICS

An advertisement in a paper that simply states your profession, residence and office hours cannot reasonably be objected to. Cards bearing only the same are unobjectionable and may be presented in person. These are as far as one can go in this direction, between a conscientious physician and a quack.—A. Liautard, 1881.

SIXTY-THREE YEARS AGO

The following resolution was presented and received extended discussion at a meeting of the American Medical Association in Washington, D. C., in 1870:

Whereas, We regard the cultivation of Veterinary Science of the most vital importance, not only to the advancement of human medicine, but also for reasons of political economy, and agricultural interest.

RESOLVED: *First,* That we recommend the State and County Medical Societies to use their influence in the establishment and support of Veterinary Schools in their respective States.

Second, that they ask the Governors of their respective States to recommend in their message to their Legislatures the importance of establishing Veterinary Colleges, and that appropriations be made to support them.

Third, That they recommend the Governor and the State Legislature when organizing Boards of Health, to appoint one or more thoroughly educated Veterinary Surgeons to be associated as commissioners with other medical officers.

Fourth, That we recommend the employment of Veterinary Surgeons in the Army and one in the Agricultural Department with rank and pay of other medical officers.

On the motion of Surgeon Otis of the Army, the fourth resolution was amended to read:

That we recommend the government to appoint a Professor of Veterinary Medicine and Surgery to be attached to the Agricultural Bureau with a suitable salary.

The whole was then adopted after considerable opposition.

55 YEARS OLD AND STILL GOING STRONG

"Until within a very few years, the members of your profession were rudely denominated 'horse doctors'."—No, that is not a quotation from the address of welcome at a recent A. V. M. A. meeting or some state veterinary meeting last winter. It is from an address at the opening exercise of the American Veterinary College in October, 1878.

HOG CHOLERA 50 YEARS AGO

During the third quarter of the nineteenth century, the loss in the United States from hog cholera was averaging $10,000,000.00 a year, and by 1878 word of this loss reached the Congress and a small appropriation was made in that year for the investigation of the disease. The Commissioner of Agriculture appointed for the investigation one "Dr." Alfred Dunlap of Iowa City, Iowa, the proprietor of an extensively advertised "specific" for the cure of hog cholera. The chief result of this appropriation and appointment was to enable Dunlap to claim "official government recognition" of his nostrum.

ANTHRAX IN BIBLICAL TIMES

Behold the hand of the Lord is upon thy cattle which is in the field, upon the horses, upon the asses, upon the camels, upon the oxen and upon the sheep: there shall be a grievous murrain.—v. 3.

And the Lord did that thing on the morrow and all the cattle of Egypt died.—v. 6. Exodus, Chap. IX.

ANTHRAX 2,000 YEARS AGO

The skins are useless, nor the tainted flesh
Can water cleanse, nor raging fire subdue;
Nor is it possible to shear the fleece
All saturated with disease and filthiness;
Nor can the weaver touch the putrid web,
But should a man attempt the odious garb
With burning pustules, and disgusting meat
His limbs offend; and in no lengthened time
The fire accursed consumes his poisoned frame.

—*Virgil.*

THE COUNTY AGENT PROBLEM

Some have questioned that the county agent has interfered generally in veterinary matters to the extent that has been stated in these pages. It seems unnecessary to state that not all county agents have pursued the same line of activities any more than it is necessary to say not all county agents look alike. This much is true, however, what they have done in one place they can and may do in another. All owe their genesis to the Smith-Lever Act and the same regulations are promulgated by the Secretary of Agriculture for all. Their difference in the concept of their "educational" duties is due to a difference in state Directors of Agricultural Extension. State Directors may change at any time. This being so, a few specific instances of improper activities in a single state may be illustrative or prophetic as the case may be; also enlightening to some.

The following is cited from the testimony of Dr. D. F. Luckey (Executive Secretary of the Illinois Veterinary Medical Association) before the "Shannon Committee":

Farm advisers have engaged in various types of veterinary business from their beginning to the present day. Some farm advisers go out on veterinary calls, make diagnoses, and do vaccination work.

Along about 1918 Dr. C. W. McLaughlin, now living at 306 Oakland Ave., Bloomington, Illinois, was practicing at Melvin in Ford County. The farm adviser, Mr. Swain, accosted him in an overbearing manner in stating that Dr. McLaughlin was wrong in his methods of vaccinating hogs in that he was using virus along with serum in vaccinating sick herds.

In the Stark County Farm Bureau Bulletin, March, 1927, page 7, appears an article beginning with, "Your farm adviser has been called to several farms during June to assist in the control of Necrotic Enteritis, a filth-borne disease of swine." He proceeds to outline treatment of this disease.

In the Waterloo Illinois Republican, Nov. —, 1931, appears the annual report of Mr. C. A. Hughes, Farm Adviser, in which he uses this language: "During the past hog cholera epidemic the farm bureau has serviced about four hundred farmers with serum. . . . When the epidemic was so bad it was necessary to use the service company men and insurance man to reach all parties who were having difficulty with hog cholera." He misrepresents the facts by stating further that it would have been impossible for the veterinarians to have attended to all the work, when three veterinarians were easily available and could have taken care of all the work, and still more.

Mr. C. E. Gates, Farm Adviser of LaSalle County, reports his investigation of a "lung type of Hemorrhagic Septicemia" in the Earlville Leader, May 28, 1931, and in the Daily Pantagraph, Bloomington, Illinois, May 24, 1931. He proceeds to furnish the papers with a short discussion of this disease.

In the Knox County Farm Bureau Bulletin, page 6, June —, 1930, Mr. A. R. Kemp, Farm Adviser of Knox County, makes the following statement, "We will give every possible service in connection with diagnosis of swine diseases and will give demonstrations as to the proper method of administering the serum and virus to all those who do not already know how."

In the Chicago Tribune, August 25, 1932, page 4, column 6, under a headline "HOG CHOLERA SPREADS," appears the following article: "Moline, Illinois, August 24th. . . . Hog Cholera is spreading in Whiteside County, according to Mr. F. H. Shuman, Farm Adviser. He ordered a quantity of hog cholera serum."

In the Farm Bureau News of Ford County, Aug. 15, 1932, Mr. W. F. Purnell, writing on vaccination against chicken pox, incorrectly credits the Illinois Department of Animal Pathology with developing Pigeon Pox Virus Vaccine, which was in truth developed and perfected in England, goes on to use this language, "The farm adviser would like to get in touch with any who are interested in the new treatment."

In the Stark County News, Toulon, Illinois, Oct. 12, 1932, the Farm Adviser, Mr. Wayne A. Gilbert, publishes his report. In this report he narrates the sale of nine different veterinary products. He itemizes each of his various activities, giving each item a number of points, indicating the part of his time devoted to such activity. The total number of points amount to 211. From his report we quote, "Vaccination and disease control, 31⅞." This indicates that about 1/7 of his time was occupied in vaccinating and other veterinary work.

I, personally, stood in the office of Mr. H. P. Kelly, Farm Adviser of Kane County, which is rent free in the Court House at Geneva, Illinois. There he kept a supply of syringes and antiseptics. He had a price of 35c marked on 2 oz. bottles of Liquor Cresolis Compositus, which the sale price would amount to over $22.00 a gallon, and the original cost of this product should be around $2.00 and probably $3.00 for the bottles and stoppers. Two-ounce bottles of Tincture Iodine were also marked with a price of 35c each, retailing at a little over $22.00 a gallon, and the cost of this with the bottles should be around $10.00.

In the Illinois State Register, Oct. 20, 1932, page 3.—On the farmers' institute program at Auburn, Illinois, Oct. 27, 1932, Mr. Edwin Bay, Farm Adviser of Sangamon County, is listed to speak on "Swine Diseases."

In his annual report for the year ending Sept. 30, 1932, found in The Stark County News, Toulon, Illinois, issue of Wednesday, Oct. 12, 1932, Mr. Wayne A. Gilbert lists 18 articles which the

farm bureau handled, 9 of which were veterinary products. A part of the farm adviser's report was omitted with this comment: "The remainder of the adviser's report explained various savings effected for the farm bureau members through the *commercial* services offered." This is typical of the activities and reports of farm advisers over the state of Illinois.

The farm adviser for the farm bureau is engaged in selling and dispensing hog cholera serum and virus, bacterins, aggressins, antiseptics, and other veterinary products.

They are making a profit out of the sale of such products. They sell for all the traffic will bear. According to the reliable information the Farm Bureau Serum Association of Illinois paid 42c per 100 cc, f. o. b. Illinois points, for their serum in 1931. According to a mimeographed circular for the Clinton County, Illinois, Farm Bureau, Feb. 14, 1931, signed by W. A. Cope, Farm Adviser, he was dispensing serum at 65c per 100 cc. According to A. R. Kemp, Farm Adviser of Knox County, in the Knox County, Illinois, Farm Bureau Bulletin, November, 1930, he was dispensing serum at 65c per 100 cc.

It is well understood that 65c was the general selling price to the farmer through 1931. The Illinois Agricultural Section, official organ of the Illinois Agricultural Association, page 2, column 3, February, 1932, states that 49,000,000 cc of serum was sold last year (1931) (presumably bought at 42c, f. o. b. Illinois points). (Sec. 6 of a letter from Ray E. Miller to prospective bidders for serum contract dated Chicago, Nov. 10, 1931, says, "Bids submitted are to be upon the basis of f. o. b. Illinois points.") Then a profit of 23c per 100 cc of serum or 54% profit was made. A profit of 23c per 100 cc on 49,000,000 cc amounts to over $112,000.00.

In 1931 they barely undersold the practicing veterinarians who paid their own overhead and traveling expenses, and who delivered the serum and virus into the hogs. They were able to hold the price of serum up to 65c per 100 cc and gouge the farmer a plenty after he had been induced, through high pressure salesmen, to pay $15.00 per year for the privilege of buying it.

According to reliable information the supply of serum for 1932 was bought at 36c per 100 cc, f. o. b. Illinois points. Reports from veterinarians and others show that the serum in 1932 is being sold at different prices in different countries to meet local competition. It is being sold in Sangamon County, Illinois, at 45c per 100 cc. In Menard County, Illinois, it is being sold as high as 60c per 100 cc. (I have a sales bill of the Menard County Farm Bureau to Harley Kiethley of 1,000 cc at 60c per 100 cc.)

Blackleg Aggressin and Hemorrhagic Septicemia Aggressin, which any veterinarian in Missouri can buy from the same firm at 40c fer ten doses, is being sold by the Sangamon County, Illinois Farm Adviser for 75c for ten doses, showing a profit of 87½%.

In 1932 some drug stores put in serum and virus. The farm bureau cut the price just under the drug store price. In Sangamon County, Illinois, where the drug store sold for 50c per 100 cc the farm bureau sold for 45c per 100 cc. In Menard County, Illinois, where there was presumably no drug store competition, they sold serum at 60c per 100 cc.

Farm advisers through the distribution of hog cholera virus actually spread hog cholera, keep the disease planted in the state, and make its eradication impossible.

A letter from one veterinarian says, "When a merchant refused to join the bureau, the 'high pressure' organizer would take several farmers with him, call upon the merchant and threaten to take their trade elsewhere unless he signed up."

A veterinarian in Springfield, Illinois, will, if necessary, make affidavit that the farm bureau solicitors threatened him that unless he joined the farm bureau and paid in his $15.00 per year that they would have to recommend his veterinary practice, in a certain section where they controlled, be given to another veterinarian. He joined.

Dr. H. M. Snyder, Farmersville, Illinois, states that the farm adviser and a soliciting committee came to him and promised that if he would join they would not start farmer vaccination in his territory. He joined, paid in, and in three or four days the farm adviser was in his territory teaching farmers to vaccinate their own hogs.

Conclusion: The farm advisers distribute virus to incompetent vaccinators who spread hog cholera. Then the farm adviser sells more serum and virus. This system keeps hog cholera prevalent and the hog raisers in continual danger of hog cholera so that they are pressed to pay $15.00 a year each into the farm bureau so that they can buy serum and virus to further spread hog cholera. It is a reasonable estimate that through the farm adviser's activity, hog cholera losses and the added expense of vaccination is costing the hog raisers of Illinois at least $300,000 annually more than is necessary.

There is more of Doctor Lucky's testimony, all of the same import, but the foregoing seem sufficient to show the type of "Educational" work in which county agents are engaged in one state. If Doctor Lucky be thought prejudiced as to the quality of veterinary service being rendered by county agents the reader is referred to the following statement by C. W. Warburton, Director of Agricultural Extension, U. S. Department of Agriculture: "County agents are not trained veterinarians. When they enter the diagnostic and treatment field of animal diseases the farmers are not getting the best service. Yet such service by publicly paid employes may cut into the practice of the professional veterinarian and make it impossible for him to live, except in a few of the larger cities or more densely populated counties."

It is Not So in Wisconsin

By K. L. HATCH, Madison, Wisconsin
Associate Director, Agricultural Extension, University of Wisconsin

IN the February issue of VETERINARY MEDICINE there is an article entitled "The County Agent Problem." There follows a purported analysis of the budget of the U. S. Department of Agriculture in which is found reference to the Extension Service—costing a little over 3% of this total budget, with this significant, but caustic, explanation, "educating the farmer in farming and his wife in fancy work." It is under this head that county agent work is carried on. I shall make no attempt to answer this satire.

It is not the purpose of this article to analyze the statements made in your article, which for the most part do not touch "the county agent problem"; nor to castigate the editor. Whatever fault your paper may find with county agent work elsewhere, I do wish to point out that "It is not so in Wisconsin."

There are left, today, but two strictly rural professions—the Veterinary profession and county extension work. These two have been growing in importance and opportunity for service very rapidly in recent years. Wisconsin veterinarians have become a high class group of well-trained, earnest men, proud of their position and their skill in achievement. The same is true of county agents. Both groups are equally sincere, earnest, capable and efficient. Why, then, should you conclude your article—apparently prepared by someone else—with this statement:

> "As one of the most conspicuous examples of meddlesomeness, inefficiency, futility and extravagance of government in business the Extension Service of the U. S. Department of Agriculture may well come in for extermination. It is the duty of every veterinarian to lend all possible support to this consummation not only in the interest of self-preservation but as a high obligation of good citizenship."

Our experience, here in Wisconsin, is that these men are allies—not enemies. They work together for the common good. Let me illustrate by a single example—that of blood testing for abortion. Our state is the leading dairy state. The principal work of the veterinarian in this state is with the dairy herd. When dairying is profitable, cows are high and veterinarians' practice is good. When dairying is in the dumps, as it now is, practice is poor and collections slow. It is therefore in the interest of the veterinarian to have the dairy farmer succeed. It is the job of the county agent to help him to succeed. It is the job of the veterinarian to protect the health of the herd. That's how he lives. Both, therefore, are interested in the dairy farmer's success. Their interest is mutual.

A few years ago, when Bang's disease began to assume ever increasing importance, this college very definitely took the position that if any "mass testing" were to be carried on it must be done on a large scale by local veterinarians. The state *could not* and *should not* assume the cost. But if the state were required to certify to the test it must exercise a measure of control over the testing. The machinery to do this was already here. It only needed "hooking up" together. The parts of this machine were the local veterinarians, the state live stock control board, and the Extension Service.

Accordingly, the college lent its facilities and its men to help train local veterinarians in the application of the test. It perfected apparatus for this purpose; apparatus that the veterinarian could use in his own office. The state department then proceeded to authorize veterinarians to make the test and to check the accuracy of their work. As a result, over 200 veterinarians have already been placed on the certified list.

The next step was to bring the county agent into the picture. His job is the educational one. By use of meetings, held in all parts of the state—usually attended by the local veterinarian—the plans of testing, control and herd management were ex-

plained to the interested farmers. As a net result, over 5,000 herds are now being regularly tested and the work is growing by leaps and bounds. This is *good business* for the veterinarians and means *much more* for the future. Is it then the "duty of every veterinarian to put an end to this meddlesome interference in business?"

As you doubtless know, at least half the states have placed some form of restriction on interstate shipments of cattle, untested for Bang's disease. New York state has set up the most drastic regulations. Here follows a letter recently sent out from this office to all county agents:

March 1, 1933.

TO ALL COUNTY AGENTS:

In view of the ever increasing importance of the "blood test" in the sale of cattle for out-of-state shipments you may care to interest *your veterinarians* in a rather extensive testing campaign.

If you do not have a copy of Circular No. 116 of the Department of Agriculture & Markets, which is a list of licensed veterinarians, I suggest that you send for one.

The New York case only serves to emphasize the fact that, one by one, buyers will insist on cattle from "abortion free" herds. As soon as recovery comes, buying will start again on this new basis. Barron County was the first county to recognize this fact in the Tuberculosis campaign and is still profiting from it. Wisconsin should start right now, aggressively, to put herself in shape to meet future demand for cattle from "abortion free" herds.

Think it over.

Already nine county agents have taken this as a major project.

Since under the Wisconsin plan herds must pass at least three clean tests to be classed as "abortion free," the amount of work to be done by veterinarians becomes enormous. All the time the county agent is pushing ahead with his educational work and the veterinarian is following it up with the actual testing.

I give this single illustration of the way that we work together here in Wisconsin. There are many more. I am sure that veterinarians no more care to see the county agent abolished than the county agents desire the destruction of veterinarians.

Whatever may be the grievances between county agents and veterinarians elsewhere

IT IS NOT SO HERE IN WISCONSIN!

THE TEN MASTER MINDS OF DAIRYING

This list selected by a large group of prominent workers and leaders of the dairy industries, includes: S. M. Babcock, W. D. Hoard, S. H. Eckles, Dr. DeLaval, E. V. McCollum, Louis Pasteur, T. L. Haecker, Gail Borden, W. A. Henry and O. F. Hunziker.

WHY COWS ARE CULLED

Low producers	138	34%
Udder trouble	43	11%
Sterility	48	12%
Abortion	14	3.5%
Death	29	7%
Old age	8	2%
TB Reactor	10	2.5%
Accident	4	1%
Sold for dairy purposes	106	26%
Other reasons	3	1%
Total cows	403	

—Iowa C. T. A. Report.

WHY HAVE A BARN AND NOT USE IT?

One young farmer shut his good dairy herd out in the cornstalk field one bitter cold, windy day in midwinter, while he went to a farmers' institute to find out how to increase his profit from milk production. He was gone from nine o'clock in the morning until four in the afternoon. During all this time his cows were shivering among the frozen cornstalks when they should have been lying comfortably in the warm barn. No matter how good the cows, or how fine the barn they were turned into later, or how excellent and liberal the rations they were afterward fed, this exposure or low factor in their care had caused a shrinkage in the milk flow and a far greater percentage of shrinkage in the profit. Such occasional poor care can easily shrink a cow's production from 280 lbs. to 240 lbs. of fat a year, and cut her annual profit from $30 to $20.

—Hoard's Dairyman.

Filariasis in a Dog

By C. L. McGINNIS, Manhattan, Kansas
Kansas State College, Class of 1933

FILARIASIS in the United States occurs chiefly in the southern tier of states. *Dirofilaria immitis* Leidy, a small, whitish, filiform nematode, is the etiological factor. The adult is five to seven inches in length and when present can usually be demonstrated in the right chamber of the heart, or in adjacent large blood vessels.

The adult female deposits its larvae directly into the blood stream where they may be demonstrated under the microscope. This is resorted to as a means of diagnosis. For further development, the accepted view is that the larvae must spend an intermediate stage in the mosquito. This occurs when the mosquito ingests blood from an infected animal. The larvae develop somewhat in the intermediate host and later are regurgitated into the wound when the same or another animal is bitten. It migrates into the blood stream and reaches its predilection point in the right heart, where it matures into the adult filaria.

An illustrative case occurred in an 18-month-old, male greyhound, which had been brought from southern California about September 1. The dog was treated successfully for anclostomiasis October 1. It first was presented to the Veterinary Clinic of the Kansas State College suffering from an acute gastro-enteritis contracted while entered in the National Coursing Meet, at Concordia, Kansas. The owner stated that the animal had suffered from previous attacks of enteritis; each attack following participation in races.

The symptoms were characteristic of an enteritis and comprised a bloody diarrhea, marked anemia, slow and careful gait, inappetence and general depression. A blood smear was not taken, but a fecal examination was negative for parasite eggs.

Treatment consisted of a low enema of luke-warm water and glycerin. Two ounces of cod-liver oil was given per os.

The next day, 5cc of iron, arsenic and phosphorous solution, containing sixty-four milligrams of iron, was administered intravenously and 20cc of a 50% glucose solution subcutaneously. This was followed by a nutritional clyster of eggs and milk.

On November 1 the animal exhibited increasing signs of debility, so 100cc of physiological saline solution was given subcutaneously and one ounce of a 1% Therapogen emulsion in oil per os was administered. The animal died that same evening.

Postmortem examination revealed a severe hemorrhagic gastro-enteritis, pneumonia with lung hepatization, filariasis. The adult filariae were entangled in the tricuspid and pulmonary valves, which created an incompetence. This is illustrated in the accompanying photograph. During the severe exercise of racing much blood was forced back into the posterior vena cava, with a subsequent visceral congestion. This resulted in hemorrhages occurring into the lumen of the intestines and diminution of peristalsis, which established the gastro-enteritis.

Improper functioning of the pulmonary valve gave rise to a partial circulatory stasis in the lungs. This allowed metastisis of bacteria from the affected viscera to the lungs where they readily established themselves due to the slow interchange of blood. This resulted in the hepatization.

Although the immediate cause of death was gastro-enteritis, the filariae, no doubt was the primary exciting factor. A more direct diagnosis could have been made with a blood examination, but the symptoms were not suggestive of filariasis.

FIBRO-ADENOMA IN A DOG

June 17, 1932, a large, eight-year-old, Airedale was brought to the Kansas State College Veterinary Clinic. It had a large spherical growth in the middle of the left hypochondriac region. (See illustration.)

Heart of dog showing Diro-Filaria in situ (see page 180).

The tumor was removed as follows: The animal was restrained closely on the operating table in dorsal recumbency. The area around the tumor was shaved and disinfected with tincture of iodine. Ten cubic centimeters of 2% sterile procaine solution was infiltrated in the tissue with a Luer glass syringe using a 20-gauge needle, having a three inch shank. The operator's hands were disinfected in a weak iodine solution. The instruments and operating cloth were sterilized by boiling for fifteen minutes. A cloth was placed over the tumor and an opening large enough to admit the tumor was made in it. A six-inch incision was made through the skin over the face of the tumor. By blunt dissection the tumor was separated from the skin and fascia.

There were no heavy adhesions to the thoracic wall. Very little hemorrhage occurred. The excess skin was removed and the wound neatly closed by several interrupted sutures using No. 16 braided silk, and covered with flexible collodion. Healing took place rapidly, the sutures were removed on the sixth day and the dog was sent home.

The neoplasm when free weighed two pounds, four ounces, and on sectioning proved to be a fibro-adenoma which is a fibrous and connective tissue with a gland like structure.

This case was interesting aside from the pathology and surgery. The owner was overjoyed to have the disagreeable and unsightly object removed, thus restoring the beauty of his old pet and also because a home-made veterinarian had said the condition was incurable when a simple operation sufficed to remedy it.

Benign, connective tissue neoplasms (fibroblastoma-Feldman) are far the most common tumors of animals. They usually occur on the surface of the body and

Fibro-Adenoma.

like all tumors of both man and animals their prevalence is far greater in the aged than in the young.

Paul Geilenfeldt,
Manhattan, Kans. K. S. C., '33.

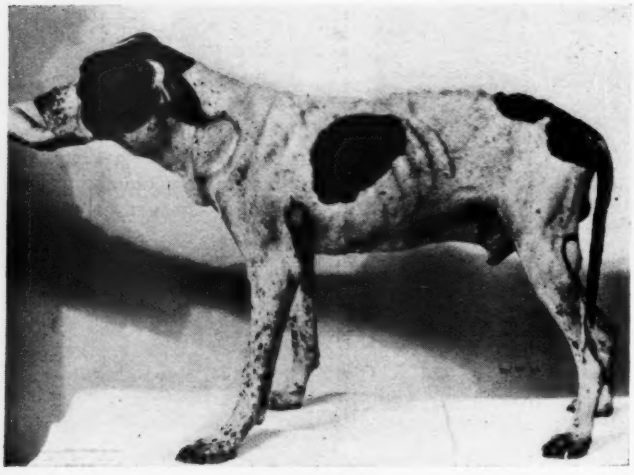
Pseudoleukemia in a Dog

By WILMER CONGER, Manhattan Kansas
Kansas State College, Class of 1933

SUBJECT.—Six-year-old, male pointer, presented at the Veterinary Clinic of the Kansas State College.

History.—The first symptoms of swelling in sub-maxillary and pharyngeal regions were noticed by the owner about one month previously. In a few days the swelling subsided and remained unnoticed for about one week. The symptoms were again noticed and had existed about two weeks before the dog was presented at the clinic.

Symptoms and Lesions.—All external lymph glands showed a marked enlargement. The dog was fairly active, alert, and his appetite was normal. Extreme emaciation was an outstanding symptom. A putrid odor was present in the breath and most of the teeth were carious. Excessive salivation was present.



Pseudoleukemia

Temperature 100.8°F.; pulse 80; respiration 20. Mucus membranes were a clear pale pink, denoting an anemia.

A blood count revealed 3,000,000 red blood corpuscles, and 3,000 white blood corpuscles per cubic millimeter. That is far below normal, which should be 5,000,000 to 8,000,000 red blood cells and 9,000 to 10,000 white blood cells. The ratio of white corpuscles to red corpuscles was about 1 to 1,000. It should be 1 to 600.

Diagnosis.—Pseudoleukemia.

Prognosis.—Decidedly unfavorable.

Treatment.—Due to the unfavorable symptoms shown, no treatment was attempted; but destruction was advised.

Necropsy.—Every lymph-gland in the body was enlarged, except the mediastinal and posterior cervical, which was slightly pigmented. The intestinal tract showed heavy hookworm *(Ancylostoma caninum)* and tape worm *(Dipylidium caninum)* infestations.

A scar on the capsule of the left lobe of the liver and a few spots of connective tissue thickening were the only lesions shown by the liver.

Anemia was evidenced throughout the body, especially in the lymphoid tissue.

The lungs showed anthracosis. Connective tissue thickening on the pleura was an indication of pre-existing pneumonia.

The cortex of the kidneys showed soft and light, color uniform. The Pelves showed no inflammation, but fatty degeneration, light colored, slightly swollen.

The spleen was dark and contained infarcts and organized connective tissue.

Conclusion.—Pseudoleukemia in the dog is very uncommon; few cases being on record at this clinic. No successful treatment has been developed.

An Outbreak of Coccidiosis in Calves

By M. C. KASTNER, Manhattan, Kansas
Kansas State College, Class of 1933

COCCIDIOSIS in calves is of common occurrence throughout the United States, being most common in young animals as an enzootic infestation. The disease occurs almost exclusively during the warm season and especially in wet years. The protozoan organism responsible for coccidiosis in calves is *Eimeria (Coccidium) zurnii,* which attacks the cells of the epithelial lining of the lower bowel during the asexual stages of reproduction of the coccidium.

The following cases of coccidiosis occurred in two, one-month-old, purebred Holstein-Friesian heifers and were observed and treated at the Kansas State College Veterinary Clinic.

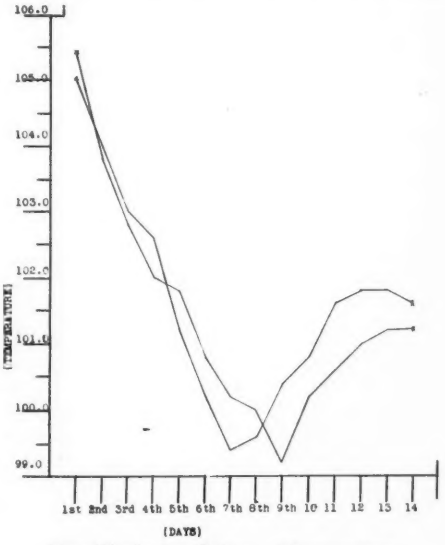
Symptoms.—A profuse, catarrhal, hemorhagic diarrhea had been present for two days, associated with a marked anemia and emaciation, temperature of 105.4°F.; the heart beat was fast, weak, and irregular. The animals were unable to rise, depressed, rough hair coat and showed an occasional convulsion of a tonic nature. The appetite was fairly good.

Diagnosis.—A definite diagnosis of coccidiosis was made after the demonstration of *Eimeria zurnii* in a glycerine flotation, microscopical examination of the feces of the affected animals.

Course. — The animals' temperatures were taken daily for 14 days. The temperature was 105.4°F. the first day, and 103.8°F. the second day, thereafter the temperature was normal except on the ninth day, the temperature dropped to 99.2°F. for one day. The feces of the affected animals were examined on alternate days and was positive for *Eimeria,* for eight days during which time there was a gradual decrease in the number of coccidia seen per field under the microscope. After the eighth day the coccidium could not be demonstrated.

Treatment.—The animals were placed in warm, dry stalls isolated from other calves. Medication consisted of 50cc of Azamine in a 0.5% aqueous suspension injected intravenously on the first day and repeated on the fourth and eighth days making a total of 150 cc of a 0.5% aqueous suspension for each animal.

Conclusion.—The animals made a steady improvement so that in one month after the last treatment the calves had almost doubled their former weight and were of a fine general appearance. A fecal examination made one month after treatment was negative for *Eimeria zurnii.*



Coccidiosis in Calves. Temperature record for 14 days.

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NON-PARASITIC OTITIS EXTERNA IN THE DOG

Otitis externa or ear canker is an inflammation of the external auditory canal, chiefly affecting the long-eared breeds of dogs; setters, retrievers, spaniels, Chesapeakes and hounds. The condition is often over-looked by dog owners. A veterinarian should always examine a dog's ears, when the animal is brought to him for any treatment—surgical, medicinal or otherwise or for clipping, washing, boarding or observation.

The cause of this trouble in hunting dogs is usually repeated exposure to cold water or the attachment of "begger lice" or some other spiny seed to the hairs of the dog's ears, this is likely to set up an inflammation, stimulating the glands that secrete cerumen, and the formation of cutaneous scabs which collect in the canal and perpetuate the irritation. Ear canker may also follow canine distemper.

In mild cases the dog often shows great pleasure and friendliness to any one who manipulates his ears; in more severe cases he shakes his head frequently and scratches his ears, often resenting their manipulation. As generally only one side is affected, he carries his head in a characteristic position, that is, with the affected ear downward. When the ear is handled, a smacking or sucking liquid sound is produced. Deafness, or impaired hearing, is often noticed in the animal. His general condition is seldom affected; however, in some very severe cases, vomiting, followed by emaciation has occurred.

The treatment is similar to that used for eczema, the character and etiology being quite often the same; so in obstinate cases it is always advisable to regulate the diet. The chief aim is to remove the cause and to dry the condition as there is in most cases a stimulation of the ceruminous glands. This cerumen irritates the linings of the canal and contributes to the inflammation already present. The following treatment has been used quite successfully:

1. Wash the ear with ether, using cotton pledgets and repeat until clean.

2. Dry thoroughly with cotton pledgets removing all traces of scabs and dirt.

3. Pack the ear with 10% iodoform in powdered boric acid, by pouring the powder into the ear and then carefully manipulating the ear so that the surfaces are all coated with the powder.

4. Repeat at two-day intervals for a week, then lengthen the intervals until all inflammation has subsided.

This condition must be differentiated from parasitic otorrhea, this can be accomplished readily by means of a microscopic examination which reveals the presence or absence of the *Symbiotes auricularum.*

W. B. Snodgrass, K.S.C. '33.
Manhattan, Kas.

DO YOU REMEMBER?

1. Question.—What is the urachus?

Answer.—A canal in the fetus which connects the bladder with the allantoic cavity.

2. Q.—Name the constituents of the quadriceps femoris muscle.

A.—The rectus femoris, vastus medialis, vastus intermedius and the vastus lateralis muscles.

3. Q.—What is the common name of the Zygadenus species of plants?

A.—Death camas; also known in some localities as lobelia, poison sego, mystery grass, hog's potato, squirrel food and soap plant.

4. Q.—What is the recognized heat-center of the body?

A.—The corpus striatum, which is the great basal ganglion of the cerebral hemisphere.

5. Q.—How does rigor mortis in an animal poisoned by strychnine or potassium cyanide differ from that in an animal poisoned by phosphorus?

A.—Strychnine or potassium cyanide poisoning produces an intense rigor rapidly, while the rigor produced from phosphorus poisoning is slight or may be absent.

Wesley O. Keefer,
Ramsay, Montana.

Surgical Interference in Fistulous Withers

By H. K. HUDSON, Manhattan, Kansas
Kansas State College, Class of 1933

A WELL-CONDITIONED, five-year-old, iron-grey gelding was presented at the Veterinary Clinic of the Kansas State College with the following history:

There was a small swelling noticed on the right side of the withers during the spring of 1932. The animal was used for draft purposes all summer and until the swelling became so large as to hinder further use. The owner had blistered the swelling with negative results.

The symptoms presented were a decided swelling on the right side of the withers, with some swelling and thickening of the entire region. A diagnosis of a ruptured supraspinous bursitis was made and surgical interference was advised.

The animal was confined in the stocks. The area of the withers, on both sides, was shaved and scrubbed with soap and water. The operative area was disinfected with a 1-1000 solution of mercury bichloride in 70% alcohol. The skin and deeper tissues were infiltrated with a 1% sterile solution of procaine hydrochloride. Two vertical incisions about three to four inches long and four inches apart were made through the skin. The incisions were made at the height of the thoracic spines and extended through the inflammatory tissue down to the ligamentum nuchae. By deep dissection all diseased tissue, including the ligamentum nuchae of the region and the supraspinous bursa, was removed. The use of large, heavy-jawed, tumor forceps to grasp the large masses of diseased tissues materially aids this operation. Following this the cavity was tightly packed with a twisted gauze tampon, impregnated with equal parts of boric acid and chlorinated lime. This not only controls hemorrhage, but prevents the formation of exuberant granulation tissue, absorbs wound discharges and prevents infection of the wound. The edges of the incisions were approximated by use of interrupted sutures of umbilical tape.

A drainage opening was made at the lower limits of the swelling to allow escape of the fluid resulting from the ruptured bursa and to give drainage as healing progressed.

The same operation was performed on the left side, except no drainage opening was necessary.

After treatment consisted of repacking the cavities every other day until healthy granulations appeared. When the edges of the incisions became firm enough to prevent gaping the sutures were removed, and the condition treated as an open wound. The cavity was never flushed out and only occasionally swabbed with dry cotton.

The exterior of the wound was cleaned daily by washing and scraping away any discharge escaping through the incisions. Applying equal parts of glycerine and mineral oil to the region below the incisions facilitates removing these discharges.

On the fourteenth day after the operation, the cavities were rapidly filling with healthy granulation tissue and the discharges had practically stopped. The animal was sent home with instructions to the owner to keep the exterior of the wound clean and not to let the animal rub the shoulders until healing was completed.

The prompt healing is attributed in part to surgical cleanliness, care in removing all diseased tissue, using no irritant injections or washes, a minimum of interference with the healing process and adequate drainage.

Adhesive Tape in Veterinary Medicine

By ROBERT H. GUMP, Manhattan, Kansas
Kansas State College, Class of 1933

THE use of adhesive tape in veterinary practice has received but limited consideration. Its wide usage in human medicine, and the favorable results obtained from it, clearly testify its value. There is little doubt that many cases occur in veterinary medicine in which the need of adhesive tape is indicated. In such cases its use would be an improvement over the present methods. It is my purpose in the following article to suggest such occasions. To do this, the article has been divided into three divisions as follows:

I. Adhesive tape in large animal practice.

II. Adhesive tape in small animal practice.

III. Miscellaneous uses of adhesive tape.

I. Adhesive Tape in Large Animal Practice

Considering the expense involved, the use of adhesive tape is usually limited to the head, neck, tail and legs in large animal practice. There are many instances where a few small strips of adhesive tape would close a wound more efficiently than several yards of bandage material. In gaping wounds resulting from wire-cuts, snags, traumatisms, etc., a few strips of tape would serve a threefold purpose:

1. Direct application of the adhesive plaster to the injured surface has a stimulating effect upon the tissues. This stimulating process is evidenced by the production of healthy granulation tissue and the formation of new skin.

2. It tends to compress the dilated veins, thus improving the circulation of the affected area and preventing blood stasis. The pressure causes an arterial hyperemia which aids in carrying away or in absorbing the debris—the healing is thus promoted.

3. Together with cellophane, adhesive tape has a wide application as a protective covering over wounds. It prevents flies, bacteria, filth, rain and infectious material from gaining entrance to wounds.

4. Adhesive tape may be used to hold dressings and packs in place on any part of the body. It can be used as a truss in case of hernia. When it is used for the above purposes, the area surrounding the affected parts should be shaved because the tape will not adhere, satisfactorily, to a hair-covered surface. Adhesive tape is efficient in holding dressings on the head, eyes and various parts, where it is hard to fasten securely an ordinary bandage.

II. Adhesive Tape in Small Animal Practice

Adhesive tape has its widest range of use in small animal practice. It can be economically used on any part of the body. It may be used to close the lips of gaping wounds or to hold packs and dressings in place. For the former use a few holes should be cut in the tape to allow air to circulate freely to the wound.

Adhesive tape is a useful immobilizing agent in case of fractures, sprains, arthritis, etc. The injured part or parts may be immobilized by using adhesive tape to fasten the splints. Some small animal practitioners use adhesive tape exclusively in splinting fractured bones of the legs. When an animal has a broken tail, a few layers of tape encircling the injured part makes a very good cast. Immobilization of an inflammed joint is another use of adhesive tape.

A few strips of tape over newly formed scar tissue is quite effective as a means of support and protection. Some prac-

titioners use adhesive tape to hold the packs in place after spaying. In this instance a strip of tape is passed around the entire abdomen and over the back, the ends overlapping to prevent slipping. It may be used to hold drooping ears in place. For this purpose a narrow strip of tape is placed on either side of the cartilage of the external ear.

As a means of restraint adhesive tape is quite effective in taping the paws and dew-claws of dogs and cats to prevent their tearing off the bandages and excessive scratching in case of skin irritations. It makes a very effective muzzle for cats when a few layers are wound around the animals mouth.

Renal Calculi.

III. Miscellaneous Uses

Adhesive tape has various uses that do not come directly under veterinary practice but still apply to the needs of the practitioner such as:

1. Taping handles of slippery instruments.
2. To seal air-tight cans and bottles.
3. To label bottles.
4. To repair broken glass.
5. To reinforce notebook covers, book bindings, etc.
6. To repair shorts in ignition systems of cars.
7. To bind sprained fingers or wrists.
8. To bind frayed rope ends.

There are many other uses for adhesive tape. The practitioner finds it indispensable to his medicinal and surgical kits.

RENAL CALCULI IN A BULL DOG

An English bull-dog, six years old and weighing about fifty pounds, was brought to Doctor B. F. Phister's Small Animal Hospital, Kansas City, Missouri, for treatment.

The owner stated that the dog was continually straining, but unable to void urine. It had been treated for minor ailments at various intervals since puppy-hood, but not for kidney or bladder disturbances.

Examination revealed a greatly distended bladder; a normal temperature and marked distress Passage of a catheter was possible for only a short distance.

Urethrotomy was performed immediately. Several hundred gravels and about two quarts of urine were obtained.

The first five days, after the operation, the patient exhibited marked improvement; voided large quantities of urine from time to time, and showed every indication of recovery. Suddenly he became weaker, stopped eating, retched frequently and continued to get worse. The owner was advised accordingly, and on the tenth day of hospitalization the dog was destroyed.

Postmortem Examination.—The following abnormal conditions were observed; an abscess, approximately three inches in diameter, was found on the prostate gland. There was a large calculus in the pelvis of each kidney, as is shown in the accompanying illustration.

The case was of unusual interest because of the unusual size of the calculi and their location.

The large size and the location of the calculi would have prevented treatment being successful even if their presence had been recognized as it would have been by X-ray examination; but the cystic and urethral calculi were so obvious X-ray examination was thought not to be necessary.

Ralph F. Shaner,
Manhattan, Kans. K. S. C., '33.

Sarco-Chondroma in Mare

By LOYAL L. RUSH, Manhattan, Kansas
Kansas State College, Class of 1933

THE most frequent tumor in the sinuses of the head is the odontoma of either the cystic, fibrous or dentigerous type. The malignant types of neoplasms also may occur.

The outcome of operation upon tumors depends upon the location, size and nature of the process. The condition should be operated upon during the early stages, if at all.

A valuable racing brood mare was entered at the Kansas State Veterinary Clinic, February 22, 1932. Four veterinarians had previously examined the case, and made four different diagnoses: influenza, tumor of the right upper nostril, diseased tooth and glanders. The latter diagnosis was withdrawn when the animal reacted negatively to the mallein test.

The history of the case was that the condition had come on rather suddenly and had gradually become worse. A bloody, purulent exudate had been discharging from the right nostril for three months before the animal was brought to the clinic. It was also evident that some object was allowing only a small amount of air to enter the right nostril as there was some dyspnea.

It was decided to remove the nasal septum to see if the upper part of the septum was involved, and to permit a more complete examination of the nasal cavity. The mare was expected to foal in two months, and as the owner wanted to save the colt, the operation was delayed until after the foaling.

Near foaling time it was impossible to pass a stomach tube through the right nasal cavity; two months later it could not be passed through either side; rather definite proof that the obstruction was becoming more extensive.

The colt was born after a gestation period ten days longer than the average. After foaling, the mare received the best of feed and care, but with the colt nursing and the involvement in the head she gradually lost condition. The colt was weaned, and several weeks later an operation for removal of the nasal septum was performed as follows:

One ounce of chloral hydrate was given via stomach tube passed through the mouth. Both of the maxillary or infra-orbital nerves were blocked by 10cc of a 2% solution of butyn injected over each nerve.

The animal was then placed on a large operating table, and confined in lateral recumbency. As soon as the area was anesthetized a trephine opening was made directly over the median line where the fingers begin to diverge from each other when passed from below upwards over the nasal bones. This point marks the lower limit of the turbinal portion of the frontal sinus and is almost exactly at the same height as the posterior border of the palate which is the best height at which to cut the nasal septum transversely.

In trephining at this point the operator was careful to avoid injuring the nasal mucous membrane and submucous artery. If one does not take these precautions severe hemorrhage may result. A second trephine opening was made on the median line, five centimeters below the first opening, using the same precautions as before. Long-jawed, compressor forceps was then passed down through the trephine opening and clamped transversly across the nasal septum. The anterior end of the septum was then cut transversely using a curved incision with a sharp pointed bistory, leaving two inches of the septum to prevent the nostril from collapsing during inspiration. The operator then grasped the cut end

of the septum with a pair of tumor forceps. A narrow, long-handled, double-guarded chisel was placed astride the septum and pushed along the roof of the nasal cavity, thus cutting the septum from the nasal bones back to the point where the chisel came in contact with the compression forceps. The chisel was then withdrawn and inserted in the same manner along the floor of the nostril thus dividing the septum from the volmer bone back to the posterior border of the palatine bone. The septum was cut transversely just anterior to the compression forceps.

Immediately after, the septum was removed the nasal cavity was tamponaded with twisted gauze impregnated with tannic acid. Twenty-four hours later the tampon was removed, and the cavity thereafter was treated as an open wound.

A small amount of tissue curetted from the floor of the nasal cavity was sectioned and examined microscopically; it proved to be a sarco-chondroma.

It is doubtful if the new growth could have been removed surgically at an earlier period due to its location, but at this time the growth was so extensive that no satisfactory treatment could be applied so, with the owner's permission, the animal was destroyed.

After the animal was destroyed, the frontal and nasal bones over the affected area were removed, and a large sarco-chondroma was found; affecting the following parts: the entire right maxillary sinus, right lateral mass of the ethmoid bone, right ventral turbinate anterior to the maxillary sinus, extreme ventral part of the left turbinate, particularly that part dorsal and anterior to the posterior nares, and the mucous membrane on the floor of the nasal cavity.

The enlargement was so extensive that the posterior nares were almost closed on both sides. This was what made it impossible to pass the stomach tube.

A sarco-chondroma similarly located and so extensive is seldom found, and is difficult to diagnose. One should generally regard the prognosis as being unfavorable in such cases.

URETHRAL CALCULI IN A STEER

A nine-month-old Hereford steer that was to be shipped to market in a week was observed straining and attempting to pass urine without success. Steers shipped into the feedlots from the Southwest are commonly affected with urethral calculi so this condition is always suspected in such cases.

Examination per rectum revealed a bladder greatly distended with urine. A distinct pulsation in the urethra was observed just below the ischial arch, caused by the animal attempting to void urine. Also many small calculi had formed on the preputial hairs leaving no doubt as to the cause of the trouble.

In order not to interfere with marketing the animal, it was decided to perform the simplest operation.

The steer was confined on the ground in lateral recumbency and an area just above the base of the scrotum was shaved and painted with tincture of iodine. The skin and deeper tissues were then infiltrated with a 1% solution of procaine. At this point is found the beginning of the S-shaped curve or sigmoid flexure of the penis and it is here that we usually find the calculi in steers.

An incision three inches long was made in the median line through the skin and deeper tissues down to the penis. Blunt dissection was used to break down the tissue around the penis and bring it out through the incision. A hard object could be palpated in the urethra at the beginning of the S-shaped curve.

An incision through the urethra permitted the urine to gush out and several calculi were forced out. The penis was cut through at this point and the upper end allowed to project out through the skin incision. The steer was allowed to get up and return to the feed lot. The following week he was sent to market in good condition; the evidence of an operation having been performed, was not noticeable.

Bill Lindley, K. S. C. '33.
Manhattan, Kas.

Phantom Pregnancy in the Bitch

By JOSEPH F. NIEBERDING, Manhattan, Kansas

Kansas State College, Class of 1933

IN spite of the advance which has been made in our knowledge of endocrinology, there appears to be some contention among authorities concerning the action of the various hormones upon reproduction. However, the fundamental theories are quite well agreed upon by the students of the science in general.

It may be well to consider, briefly, the more common hormones, bearing in mind especially their effect on the condition, which considerable evidence would indicate it to be, simply cystic ovary. It is apparent that this condition is caused by the alteration or destruction, elimination or inactivation of the hormone which, when an animal fails to conceive, causes the recurrence, rather than the inhibition of another estrus cycle. This seems to be the cause of the condition.

Another possibility is that in the case

Cystic Ovary in case of "phantom" pregnancy.

of cystic ovary, the cyst may produce, or incite the production of, the hormone which the true corpus luteum (the corpus luteum of pregnancy) would produce; thus initiating all or at least some of the necessary psychic changes in the body which are common to conception, parturition, and lactation. Other symptoms which have been observed are hydrometra, psuedolactation, and the bestowal of maternal affection upon almost any object in lieu of offspring. It is thought that the following case will illustrate these phenomena.

In July, 1932, a dark seal purebred Boston Terrier which had been kept in a city apartment was brought to the Veterinary Clinic at the Kansas State College to be examined. Since the animal could not have had contact with other dogs, it was surprising to see her developing symptoms of pregnancy.

The history revealed that about fifty days after her last estrual period the dog began to show a development of the mammae, a seemingly enlarged abdomen and symptoms of restlessness; furthermore the dog gathered rags and clothing, of which she made a nest, and to this carried a slipper, cuddling it to her abdomen as a mother dog would a puppy. This expression of maternal affection in animals is very interesting, due to the various explanations for the phenomenon.

Careful palpation revealed no fetus. The owner was advised to take the dog home and observe her for a few weeks, which he did; later returning her to the hospital. She had not made any unusual changes, and probably lost somewhat in weight. Also she was less responsive mentally than a normal dog.

Due to the complexity of these conditions, it was only after an examination, and careful observation and study of the case, that it was decided to perform a laparotomy, and examine the genitalia. On opening the abdominal cavity and following the course of the fallopian tubes it was found that the right ovary was enlarged and cystic. There was no particular evidence of inflammation.

Upon consultation with the owner it was considered best to perform a hysterooophorectomy. The diseased ovary showed a large vesicle filled with a watery fluid, which is plainly shown in the accompanying illustration.

It is inferred that a diagnosis of false pregnancy with psuedolactation and without hydrometra is correct for this case, and that the probable production or alteration of some endocrine hormone, due to the cystic condition of the ovary, accounted for this condition. It is commonly called phantom pregnancy.

DEHORNING A BULL UNDER LOCAL ANESTHESIA

A large Ayrshire bull was presented at the Veterinary Clinic of the Kansas State College to be dehorned. He was rather vicious and as he had attacked his caretaker earlier in the day the owner did not want to take any further chances with him.

On examination the horns were found to be five inches in diameter at the base which prevented using dehorning shears.

In the case of small groups of animals, or those of considerable value, or where evidence of pain on the part of the animal is objectionable to the owner, it is highly desirable to use some form of anesthesia. If good anesthesia is obtained it will also eliminate some of the difficulty of restraint in large animals. It was decided to dehorn this particular individual under the influence of a local anesthetic injected along the proposed line of incisions.

In removing horns at least one-half inch of skin, all around the horn should be removed as this does away with any possibility of unsightly stubs developing.

The animal was confined on the operating table in lateral recumbency. Two ounces of a 3% solution of procaine was injected subcutaneously and into the periosteum at the base of one horn, similar injections were made at the base of the opposite horn using the same amount of a 2% solution of procaine.

A saw was then used to remove the horns, slanting the incisions in such a manner that a nice shape was given to the poll.

In removing the horn where the 3% solution was injected the animal gave no evidence of pain. Complete anesthesia was not obtained on the side which received the weaker solution.

When the horns are cut as close as possible to the head it exposes, outside of the horn the artery which supplies the corium. Hemorrhage is then easily controlled by grasping this artery with forceps and pulling it out as far as possible. This will cause the artery to stretch quite a distance and when it breaks it retracts under the skin, thus pressure of the tissues prevents further hemorrhage.

This method was used as each horn was removed so only slight hemorrhage occurred.

A pack containing iodoform and boric acid in the proportions of 1 to 10 was placed over the wounds and held in place by a figure eight bandage.

Animals may be dehorned painlessly under the influence of a local anesthetic if properly injected and of sufficient concentration. When procaine is used the solution should be of not less than 3% strength.

W. F. Irwin, K. S. C. '33.
Manhattan, Kas.

Purebred prices now are almost on a par with prices of meat animals. The economic crisis that is making it hard for the average producer to get the stock he needs is also forcing some of our outstanding breeders to disperse their herds at ridiculously low prices. Of course, the country loses by this liquidation in the end. These famous breeding establishments were valuable sources of seed stock and cannot easily be replaced. But the immediate effect will be good in one way—it will spread valuable blood lines over wide territory, and undoubtedly will contribute to the improvement of many herds and flocks. The lesson of all our research is that it pays to breed the best sire you can possibly obtain to the best females of the flock or herd.—*John R. Mohler.*

HYDROPS AMNII IN A BITCH

July 15, 1932, a two-year-old Irish setter bitch was presented at the McGinnis & Ferguson Animal Hospital. The owner stated that the patient had been bred June 5th or 6th, and that a discharge of amnionic fluid had been noticed for three days.

The outstanding symptoms were depression; extreme distention of the abdomen, and a discharge of amnionic fluid from the vulva. The temperature was normal; the respirations increased and shallow. The animal was not straining. Several fetuses could be palpated through the abdominal wall, and their size seemed to correspond with the duration of pregnancy. Attempts to palpate them by way of the vagina proved disappointing.

Diagnosis was withheld and expectant treatment resorted to for 24 hours. At the end of this period no material change had taken place. A diagnosis of hydrops amnii was made and surgical removal of the ovaries and uterus with its contents deemed advisable.

The patient was anesthetised with eight grains of Nembutal, given per os, and confined in dorsal recumbancy, on a small animal table. The operative area in the region of the median line was shaved, thoroughly cleansed and disinfected. The anesthesia was not sufficient for the operation and was supplemented by a small amount of either. A 3-inch incision was made just posterior to the umbilicus and through the median line. The uterus bulged through this opening and was easily removed from the abdominal cavity. Catgut ligatures were placed around the ovarian ligaments and around the vagina posterior to the cervix. The uterus and ovaries were then amputated about one-half inch above the ligatures. The abdominal wound was closed with four interrupted sutures of No. 16, braided silk.

The prognosis was unfavorable. For three days, the patient was very weak and depressed, with little appetite, but at the end of this period slight improvement was noted. She was given a stimulating diet and kept in a comfortable box. At the end of two weeks she left the hospital well on the road to recovery.

V. W. McGinnis, K.S.C. '33.
Manhattan, Kas.

SWINE DYSTOCIA

A method of handling a recent case of dystocia at Veterinary Clinic of the Kansas State College seems worthy of mention. This consisted in the use of mineral oil, iodoform, and pituitary extract.

A one-year-old Duroc Jersey gilt was presented at the clinic for examination. The sow, belonged to a member of the 4H Club, was a good individual and had been shown at several shows. The owner had moved the sow a distance of sixty miles by truck one month previously. The first symptoms of parturition were observed Sept. 28; three still-born pigs being expelled at this time. Forty-eight hours later vaginal examination revealed a fetus—anterior presentation—in the body of the uterus. This was considered an unfavorable operative case, since infection of the uterus was evident and a long time had elapsed since onset of parturition. If a sow has been permitted to labor for more than twenty-four hours without attention she usually succumbs to cesarean section.

Two cubic centimeters of pituitrin were injected into the posterior auricular vein and one dram of fluid extract of ergot in four ounces of water was given per os. One pint of liquid B.I.P.P. was injected into the uterus as a lubricant and antiseptic.

B. I. P. P.

℞
Bismuth subnitrate
Iodoform—a.a. .....ʒss
Liquid petrolati—q.s. .....oj
M. et ft.—oleum

This makes an excellent preparation to inject into the infected uterus as the oil delays the absorption of toxic products and iodoform slowly liberates iodine in the presence of organic matter.

Sixteen hours following the initial treatment, three fetuses were expelled at ten minute intervals. The first two fetuses were dead but of normal size. The third

fetus was about one-third normal size and mummification was evident.

The after care consisted in the injection of one pint of mineral oil daily into the uterus. Sufficient recovery warranted discharge of the case on the fifth day following admission.

In cases of dystocia in sows where they have been permitted to labor for more than twenty hours, conservative treatment will save more sows than any of the operative procedures.

Jake Reineccius, K.S.C. '33.
Manhattan, Kas.

AMPUTATION OF THE PENIS IN A HORSE

The following case was presented at the Veterinary Clinic at Kansas State College, August 18th, 1932:

Subject.—Black gelding, 21-years-old, weighing approximately 1300 pounds.

History.—One year ago several small enlargements had been removed surgically from the anterior portion of the penis.

Symptoms and Lesions.—Examination revealed a cauliflower-like growth protruding from the sheath and involving the glands and anterior one-fourth of the penis. There was a bloody discharge and evidence of marked irritation due to rubbing against the legs.

The size and extent of the growth resulted in a paraphimosis but did not interfere with urination.

Diagnosis.—Probably carcinoma. Amputation of the penis was advised.

Operation.—The horse was placed in stocks and an area over the first and second coccygeal articulation was shaved, cleansed and painted with tincture of iodine. A 16-gauge hypodermic needle, two inches long was inserted between the first and second coccygeal vertebra into the epidural space and 40cc of a 2% procaine solution was injected. The horse was then confined on the operating table in lateral recumbency.

The penis was extended by means of a linen bandage, fastened securely to the penis and tied to one of the front legs. The penis and sheath were thoroughly cleansed with soap and water and rinsed with a 1% solution of creolin.

A sterile metal catheter was inserted in the urethra for about 10 inches.

Hemorrhage was controlled by placing a ligature tightly around the base of the penis. A triangular shaped section of skin was then removed from the ventral surface of the penis and directly over the urethra at the desired point of operation. These primary incisions were made through the skin and underlying tissue, but not through the urethra.

The mucous membrane was divided by a linear incision commencing at the apex of the triangle and carried forward to its base. The mucous membrane was then sutured on each side of the skin incision. The sutures were rather closely placed to develop as extensive adhesions as possible.

The penis was ligated about one-half inch anterior to the base of the triangle by means of two heavy silk ligatures, each involving one-half of the penis. Amputation of the penis was performed one-half inch anterior to the ligatures. The ligature at the base of the penis was then removed.

The aftercare consisted of flushing the sheath once daily with a 1% potassium permanganate solution.

Recovery was uneventful.

William J. Angerer,
Manhattan, Kans. K. S. C. '33.

COST OF TUBERCULOSIS IN NEW YORK

There are approximately 5,000 deaths annually in New York City from tuberculosis and 25,000 constantly ill with the disease. Eighty to ninety percent of those affected are without earning capacity at the present time. New York State maintains 8,000 hospital beds for tuberculous patients, at a cost of eight million dollars a year. The total cost of the disease to the people of the state, including loss of earning power of the afflicted but making no allowance for the value of the lives lost, is given by Williams in *Medical Times* as $36,250,000.

Genital Diseases Other Than Brucelliasis In Two Bulls

B. A. BEACH, E. C. McCULLOUGH and G. C. HUMPHREY, Madison, Wisconsin

THE importance of infections other than Bang's disease in the cattle breeding industry was first emphasized by Williams[1] in 1921. Two years later Williams[2] again called attention to the fact that some herds of cattle were suffering from genital infections other than those caused by *Brucella abortus*. In 1929 Lothe[3] stressed the importance of sterility aside from that caused by Bang's disease. As cited by Williams[5], two European investigators, Prof. Dr. Reisinger[6] in 1928, and Küst and Uhrig[7] in 1932 found early abortions and sterility associated with vesicular venereal disease and showed beyond reasonable doubt that the infected sire was the mode of transmission. Again in 1932, Lothe[4] reported on sterility in a herd known to be infected with Bang's disease, and showed quite clearly that the incidence of sterility was just as high in the non-infected as in the infected cows.

While it is obvious that Bang's disease does upset the generative mechanism, the authors believe that the finding of reactors to the agglutination test does not constitute proof that this infection is the cause of all coexisting early abortions and sterility. It seems likely that in the past much sterility due to other causes has erroneously been attributed to Bang's disease, and as pointed out by the writers cited above, the elimination of Bang's disease does not eliminate all sterility or even all abortions.

Unless the rôle of other agents, both infectious and non-infectious, in the production of genital disorders is recognized and explained to the owners of infected herds, they may be led to expect all abortions and sterility to cease as soon as Bang's disease is eliminated from the herd. Bang's disease is serious enough, in itself, to warrant the expenditure of considerable time and money in its eradication, without assuming it to be the cause of all abortions and sterility.

A dairy herd that came under our observation last year serves again to point out that abortions and sterility may involve nearly all the females in a herd that is free from Bang's disease as shown by the blood test.

The Test Herd

This herd was negative to the blood test as applied by the attending veterinarian and later by the authors. The owner of the herd purchased a five-year-old, purebred bull from a breeder in another county. This animal was negative to the blood test, and was of excellent conformation and breeding. His heifers had a 400-lb. butterfat average and the purchaser had high hopes that this sire would materially improve the type and production of his cows.

In 1930, the year previous to the purchase of this bull, all of the twenty-five females in the herd had produced living calves. This bull was then used on all cows and heifers of breeding age with the exception of one that was pasture bred to another sire. The only living calf dropped during the following year was this catch-bred heifer. The other females developed whitish discharges six to eight weeks after service, and small fetuses were known to have passed from some of them. It seems likely that all of the cows bred to this bull aborted, as all of them developed a discharge and later came in heat at irregular intervals.

This herd, which has been entirely free from genital disease of any sort was, by the unfortunate use of one herd sire, transformed to one where abortion and sterility were rampant.

The First Test Bull

Inquiry revealed that at the time this bull was sold, none of his recent progeny was on the home farm. Had the purchaser exercised a little discrimination, he might have avoided introducing this animal into his herd. This observation serves to emphasize that freedom from Bang's disease and the record of high-producing progeny are not all that should be considered in selecting a proved sire.

This animal was purchased and taken to the Wisconsin Agricultural Experiment Station for observation and study. Clinical examination failed to reveal any gross abnormality, and microscopic examination of the semen revealed many apparently normal spermatozoa with excellent motility. The new owner stated that the bull was prompt and vigorous in action and he apparently settled the majority of cows and heifers to which he was bred.

The first step in our study was to procure a virgin heifer from a herd which was negative to Bang's disease as determined by the agglutination test, and which had been free from all breeding troubles insofar as could be determined. This heifer was bred to the bull under consideration. Four weeks later, when she was killed, the right uterine horn was found to be slightly enlarged. Incision revealed the left horn to be empty and the right horn to contain a small gelatinous membrane.

Bacteriological Findings

Cultures from the left uterine horn were negative, while two organisms were isolated from the small gelatinous membrane found in the right uterine horn. One was a short, gram-negative rod, the other a gram-positive streptococcus of the Beta type. At first, great difficulty was experienced in getting the rod to grow except in symbiosis with the streptococcus. It was not difficult to obtain pure colonies of the streptococcus by plating, but only after several transfers on artificial media was it possible to obtain pure colonies of the rod.

The rod was motile and failed to produce gas in carbohydrates. It grew discreetly on starch agar and slightly hydrolyzed starch, reduced nitrates to nitrites and failed to liquefy gelatin. Litmus milk was reduced in the bottom of the tube, with a sharp line of demarcation about ½-inch from the surface between the reduced and unreduced litmus. Positive *Brucella abortus* agglutinating serum failed to agglutinate suspensions of this organism, which we identified as identical with or closely *Alcaligines fecalis.*

The streptococcus formed short chains, and while gram positive was easily decolorized after treatment with Gram's iodine by five minutes' exposure to 95% alcohol. Gas was not produced although acid was produced with the following carbohydrates:

Dextrose	Levulose
Dextrin (slowly)	Maltose
Lactose	Saccharose (slowly)

Carbohydrates not fermented were:

Adonitol	Inulin
Asparagin	Raffinose
d-Galactose	Rhamnose
Dulcitol	Salicin
d-Mannitol	Sorbitol

Xylose

The streptococcus produced very small colonies on starch agar and slowly hydrolyzed starch. Litmus milk was turned acid, and beginning about 1½ inches below the surface the litmus was reduced. Gelatin was not liquefied. Suspensions of this organism were not agglutinated by positive *Brucella abortus* agglutinating serum. On blood agar, the colonies of this streptococcus were surrounded by a clear zone of hemolysis which is characteristic of the Beta type streptococci.

The bull was next slaughtered. The internal genitalia were apparently normal; the seminal vesicles were greyish in color; the fluid in the ductus deferens sac was thick and yellowish in color. Adhesions between the parietal layer of the tunica vaginalis and the epididymus and body of the right testicle were noted. These adhesions were so extensive that they could be broken down only with difficulty. Bac-

teriological examination was made of all genital organs. Only the right testicle proved to be infected. Again a Beta type hemolytic streptococcus was found in abundance. As far as could be determined this was identical with the one isolated from the heifer. The rod was not found in the bull.

The Second Test Bull

Another herd where considerable breeding trouble was experienced was called to our attention. This herd had harbored Bang's disease in the past but all reactors had been removed. However, breeding troubles continued unabated. A microscopic examination was made of the semen of the bull used in this herd. Very few motile spermatozoa were demonstrable. Inasmuch as abortions and sterility had been present in this herd for sometime, little helpful information could be found except that this bull was settling only a small percentage of the cows that were bred to him.

He was likewise purchased for test purposes. Four virgin heifers were bred to this animal. None of them conceived. They were killed from 30-90 days after service. Bacteriological examinations were negative except for a few spreader colonies that were evidently contaminants. Clinically this bull was apparently sound. Slaughter revealed no gross pathological lesions. The seminal vesicles were yellowish in color and the fluid in the ductus deferens sac was thin and watery. Bacteriological examination failed to reveal anything of significance.

Summary

The testicles of one bull became infected to the extent that all cows and heifers bred to him had early abortions followed by more or less sterility. The spermatozoa of this animal were apparently normal. A hemolytic streptococcus was found in the testicles of the bull and in the uterus of the heifer bred to him.

The second bull had few viable spermatozoa in his semen. He was able to get only a small percentage of the females bred to him with calf, but as far as could be determined did not infect them.

Conclusions

1. Abortions and sterility may run rampant in herds entirely free from Bang's disease.
2. It is unsafe to purchase herd sires without taking into account the breeding history of the herds on which they were used.
3. Because a microscopic examination reveals many viable and apparently normal spermatozoa in the semen, one must not conclude that the bull in question is necessarily a safe animal to use.
4. The second bull studied did far less herd damage than the first one, in spite of the fact that on the basis of a microscopic examination of the semen the first bull would have passed as sound.
5. It would have been far better had the second bull been completely sterile, as most of the few cows that he did get with calf failed to produce living young.
6. It is probable that the streptococcus found in the first bull mentioned is not a specific infection peculiar to the testicles of bulls, but rather that this organism invaded the testicular tissue because of some temporary lowering of the vitality of that organ.

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Blacktongue in Dogs—Canine Typhus

By CHARLES J. PRCHAL, Manhattan, Kansas
Kansas State College, Class of 1933

BLACKTONGUE is a subacute enzootic disease of middle-aged and old dogs, beginning as an inflammation of the mucous membranes of the alimentary canal, and progressing to an ulceration and sloughing. The exact etiology of this disease has not been determined definitely; although a vitamen G (B_2 or P-P) deficiency leading to a marked disturbance of metabolism is thought to be an important factor. Foods containing vitamen G (or B) will prevent the occurrence, and the administration of therapeutic agents high in vitamen G (B complex) content will entirely overcome the condition; providing that secondary manifestations have not gained a secure foothold.

In early stages of blacktongue there are reddened—hyperemic—areas in the mouth. These areas are always bilatterly symmetrical and thus easily differentiated from traumatisms or effects of hot food or drink. In a typical, well-advanced case the mucous membranes of the oral cavity will show ulcerative areas and shreads of mucous membranes sloughed off. The mouth emits an unpleasant, putrid odor that is characteristic. The feces will be loose, bloody, and fetid. The animal walks cautiously and slowly. In some cases it is unable to retain its food—vomiting liquid food and therapeutic agents immediately after forced administration. The elasticity of the skin is lost—due to lack of tone and progressive emaciation. The temperature usually remains normal, but sometimes a subnormal temperature is recorded. A dull blue color will appear over the surface of the tongue—thus giving rise to the common name blacktongue.

On postmortem examination of the alimentary canal one may note that the severe inflammation or ulceration is found within the stomach and duodenum limited primarily to Peyer's patches of the small intestines. In severe cases stomach ulcers may become confluent forming large ulcerative areas. The intestines contain an abundance of mucous and blood.

This condition is differentiated from gastro-enteritis resulting from meat poisoning or other poisonings and from the intestinal form of canine distemper by the ulcerative and sloughing mucous membranes of the mouth, the slow progress of symptoms, and the characteristic, unpleasant, putrid odor emitted from the mouth.

Last summer the writer observed some forty cases of blacktongue in the Memphis (Tennessee) Small Animal Clinic. Favorable results were obtained from the following treatment:

Two to three tablespoonfuls of dried brewer's yeast was mixed in ½-pint of lukewarm water and given per os by drenching or via a stomach tube. The yeast treatment was employed four to six times daily depending upon the severity of the case. To prevent pyogenic bacterial invasion the mouth was flushed with a 1-1000 flavine solution, and some of this solution allowed to pass into the stomach. The oral cavity was thoroughly flushed after each yeast treatment.

Liver extract, incorporated with the above treatment, when injected intramuscularily, in many instances, resulted in abscesses at the point of injection, in spite of antiseptic precautions. In several cases where liver extract was used the original 10cc injection was divided into two 5cc injections with similar unfavorable results.

The affected animals were confined to

a clean kennel in a cool dry place where they may secure as much rest as possible. Exercise was limited to two *ad libitum*, fifteen-minute periods per day — always carrying the affected animals from their kennels to the out-doors so as to overcome any involuntary exertion. Animals in which the appetite was not materially decreased received fresh, raw, finely-ground beef—those that refused the ground beef were fed finely chopped, *cooked* pig liver—three times daily.

As a preventive measure the owners were advised to feed a balanced ration of milk and meat, or the addition of brewer's or baker's yeast to the present ration.

ARTIFICIAL IMPREGNATION IN BITCHES

During the period that I was privileged to serve an internship as a veterinary student in the employ of Dr. John F. McKenna and Staff, Los Angeles, I was impressed with the method of artificially impregnating dogs. This practice proved successful and was necessary at times.

The reasons for practicing artificial impregnation of bitches are:

1. Quite often male dogs are brought into the hospital to serve a female and from lack of experience they are unable to copulate successfully before becoming exhausted.

2. Another reason is the time involved trying to stud an unexperienced dog. Sometimes many hours are required to get two dogs to copulate. After trying to breed the dogs without success, the owners bring the pair to be bred to the hospital. After trying the arts of getting the two dogs to copulate we too sometimes fail, and therefore resort to artificial impregnation.

3. A third occasion for artificial impregnation is the case where the bitch will not stand; sometimes fighting the stud because she is not in the full heat period, or is too far past the heat period; or the male may be considerably larger. She may also be too tight; in that case the vagina should be lubricated well with mineral oil before trying to breed the dog, either naturally or artificially. Sometimes, especially in older females, little tumors prevent the entrance of the penis. In these cases artificial impregnation gives the desired results.

The instruments required for artificial impregnation are:

1. A 30cc glass hypodermic syringe.

2. A male cat (tom) catheter or human catheter.

After sterilizing the syringe and catheter by boiling they should be kept at body temperature — 101° F.— by wrapping warm towels or wet warm cotton about them.

Then the male is placed on the table and his penis is manipulated manually until he has an erection. The prepuce is pushed posterior to the bulbous penis and the hand is held tightly around posterior to the bulbous penis so that erection is maintained. The penis is then extended between the hind legs. The glass syringe (with the plunger removed) is held in the left hand with the finger over the needle end of the syringe, so that the semen will not escape, while with the right hand the manual erection of the penis is maintained by tightly squeezing the enlarged bulbous penis. When ejaculation occurs the semen is collected in the syringe barrel or cylinder by holding it near the glans penis until about 7 to 12cc of the semen has been collected. Then place the plunger in the syringe, keeping it warm with the towel. The bitch should then be placed on the table, and the catheter inserted into the vagina and as near as possible into the uterus. The syringe is then attached to the catheter and the semen is injected into the os uteri or as near to it as possible. After injecting the semen, hold the vulva closed with the fingers elevating the hind quarters for 10 to 15 minutes, so as much of the semen as possible may be retained.

By this means a Sealyham terrior was impregnated with the gratifying result that she gave birth to 11 pups. Other dogs were impregnated similarly with successful results.

Duane L. Cady,
Manhattan, Kans. K. S. C., '33.

Breed Mares—Now

By WAYNE DINSMORE, Chicago, Illinois
Secretary, Horse Association of America

THE decrease in horses and mules in the last 13 years has thrown from 25 to 30 million acres of land—some think it may be 40 million—into the production of more wheat, corn, oats, dairy products, or meat animals—and has helped to swell surplus to the present price breaking total.

When wheat goes down in price, corn, oats, rye and barley follow. Grain raisers lose buying power. As they stop purchases, factories supplying the things they bought, slow down or stop. Factory workers lose buying power and reduce their purchases of meats and dairy products. Prices on cattle, hogs, sheep and dairy cattle then go down. Livestock farmers lose buying power, and curtail their purchases, which in turn slows down or closes other factories, reducing demand for farm products still further.

One remedy advocated for over-production of wheat, cotton, etc., is to shift to other crops. When southern states shift from cotton to feed crops, midwest farmers sell less hay and oats; when western states shift from wheat to feed crops and beef cattle and hogs, the corn belt's meat making industry has new competition that helps hold prices down. *There is only one practical shift that takes land out of the production of surplus. That is using land to maintain more work horses and mules, and to raise more of them. This does not require federal aid nor increase taxes.*

Government estimates for January 1, 1933, report 12,163,000 horses and 4,981,000 mules on farms. Between January 1, 1920, and January 1, 1933, the craze for motor power reduced horse and mule population 8,938,552. The reduction in animals actually at work was probably not over 2 or 2½ million, but fear that there would not be use or demand for horses and mules kept men from raising them. The result is that we have now not over 2½ million horses and mules under four years of age, out of a total of 17,144,000 head on farms—and horses and mules are higher today, measured in corn, oats, wheat, beef cattle, hogs, or dairy products, than at any time in the last 15 years.

In January, 1918, it took 54 bushels of corn, 118 bushels of oats, 45 bushels of wheat, 200 pounds of butter, 826 pounds of native beef cattle or 613 pounds of fat hogs, to buy a farm chunk costing $100. In January, 1933, it took 312 bushels of corn, 441 bushels of oats, 153 bushels of wheat, 395 pounds of butter, 1,500 pounds of native beef cattle, or 2,380 pounds of fat hogs to buy the same kind of a horse, though his price in dollars had come down to $75. All comparisons are from Chicago open market prices, and the differences are even greater in many localities.

The most sensible farm relief would come through a shift in land use, by increasing use of horses and mules, and production of them. A horse or mule at work consumes annually about 70 bushels of oats, 15 or 20 bushels of corn, 1 to 1½ tons of hay and an acre of pasture, plus the aftermath of meadows, grain stubble and stalk fields. This takes, roughly, the crops from 2½ to 3 acres of good corn belt land, or 4 or 5 acres of less productive land.

We cannot make this reverse shift in land suddenly, although there are more than 2½ million mares between 3 and 10 years of age, available for breeding, and if all were bred in 1933, we would have around 1,500,000 colts in 1934. If this volume of breeding were continued 10 years would bring our animal power back to a reasonable basis as to age of work animals, and would increase our present total number of horses and mules by nearly 5 million head, which increase would take from 15 to 20 million average acres out of the production of surplus crops and thereby help all farm prices.

Encouraging horse and mule use and production is a sound permanent policy for all interested in a more prosperous agriculture. It helps a farmer to help himself. Encourage your clients to breed their mares this spring—NOW.

The Value of Postmortem Examination

By R. D. TURK, Manhattan, Kansas
Kansas State College, Class of 1933

VERY few students, enrolling in Veterinary Medicine, see the value of chemistry, rhetoric, zoology, and other subjects not directly pertaining to veterinary science. Quite often during the freshman and sophomore years, the remark "I can not see why one has to study things like that in order to be a veterinarian," is heard. Toward the completion of the course, the majority of them realize that all parts of the curriculum are necessary. Many times the student wishes he had realized the value of some particular subject at the time he was enrolled and had learned more about it. However, there is one subject whose value many do not realize, not only during student days but even long years after graduation. That is, the value of a properly performed autopsy. True, the animal concerned is beyond help but many times the postmortem findings are more significant than all the history and all the clinical symptoms combined. It not only has a distinct economic and educational value, but often times prevents needless blame for the loss of the animal by revealing the presence of some irremediable condition. A few reports from the Veterinary Clinic of the Kansas State College may show why it is highly advisable to conduct a postmortem examination regardless of history, symptoms, or probable cause of death.

A Dog Not Poisoned

A man living near Manhattan brought a dog to the College for autopsy. The only history obtainable was that the dog, a male, two-year-old Collie, had been perfectly healthy the evening before and had been found dead in the front yard that morning. The owner was firmly convinced the dog had been poisoned and he was not the least backward about stating whom he suspected and what he thought of him.

The autopsy findings revealed three crushed ribs on the right side, a ruptured liver, and numerous subcutaneous bruises. The hemorrhage from the liver into the abdominal cavity had caused death. It was evident that something had hit the dog and judging from location and extent of the injuries and the fact that the owner lived on a much-traveled highway it was assumed the lethal agent had been an automobile. In this instance if the autopsy had not been performed, no one would have ever been able to convince the owner that the dog had not been intentionally poisoned.

Not a Vaccination Break

In the spring of 1932 a herd of hogs near Manhattan was vaccinated against cholera. Seven days later, the owner of the swine called the veterinarian who had vaccinated the animals and informed him that two of the hogs were dead. The veterinarian went out, convinced in his own mind that he was dealing with a serum break, and autopsied both animals. In one, a spring pig, he found a heavy ascaris infestation in the bile ducts of the liver, in the gall bladder, and in the common bile duct. This had resulted in a suppurative choledochitis and cholecystitis, generalized icterus and septicemia. In the second, a yearling sow, a generalized peritonitis was the outstanding feature. Further examination revealed a ruptured uterus and evidences of a pyometra.

This case demonstrates how a careful postmortem examination prevented the veterinarian from being blamed for a post vaccination loss. Not only was the owner satisfied, but the veterinarian felt much better when he had demonstrated the cause of death.

Most post vaccination trouble could be prevented if the veterinarian could autopsy a sick pig before consenting to take the job. Sacrificing one pig often reveals presence of necrotic enteritis or worm infestation. It is only logical to assume that if these conditions are cleaned up before vaccina-

tion, post vaccination losses will be minimized. "An ounce of prevention is worth a pound of cure," but one should know what he is trying to prevent.

Thoroughness Essential in Autopsies

It is essential that the autopsy, if performed, be a thorough one. A student was sent out to autopsy a sheep. He returned with the report "death due to toxemia, cause unknown." Questioned as to whether the deceased animal was a male or female, he was unable to say. The instructor and student made a second trip and further examination revealed the presence of septic metritis. This illustrates the necessity for examining all parts of the carcass, if the primary cause of death is to be determined correctly.

A properly performed postmortem examination not only has distinct economic value, but educates both the owner and the veterinarian. Even when the cause of death is known such an examination often reveals surprising conditions. Latent infections, such as tuberculosis, parasites in unusual locations or tumors of various sorts, that were not evidenced by clinical symptoms, may be present.

Check Your Diagnoses

In the June, 1929, issue of the Forum Magazine, Mr. T. Swann Harding writes: "I heard Dr. Charles Mayo make a proud boast before the Surgical Congress in Washington, D. C. He boasted the Mayo Clinic had attained the phenomenal record of attaining 50% correct diagnoses." This included of course autopsies on patients who had died but whose aliment the clinic had diagnosed correctly. It is probably a high mark for all time. If in human medicine, they are only 50% correct, how good are you? One should conduct as many autopsies as possible and check up on oneself. One may be surprised at some conditions present that were not even suspected or suggested clinically. Regardless of the correctness of one's diagnosis or treatment, benefit will accrue to one who consistently performs thorough autopsies at every possible opportunity.

STUBBORN CASE OF PAPILLOMATOSIS IN A DOG

I have been treating a case of warts in a dog, at intervals for two years, with little or no success. My treatment has been surgical and medicinal, using arsenous preparations, both internally and externally, also iodine preparations.

The warts are fibrous, finger-like growths, others are pustules and grow on all parts of the body. This animal is a valuable bird dog and I shall appreciate any suggestions that will help in this case.—F. E. W., Oklahoma.

Reply: In most cases of this type of papilloma, we have had best results by cleaning out the dog with a good dose of castor oil and placing the animal in clean surroundings, giving a good warm bath at least twice a week, using a two percent mercuric biniodide soap (Jen-Sal) and one-half ounce Liquor Cresolsis Compositus U. S. P. to each gallon of bath water. We also give the dog one capsule every day containing the following: Creosote U. S. P. 4m, cod liver oil (Upjohn's Super D) 8m, strychnine sulphate, gr. 1/150, atropine sulphate, gr. 1/200, and arsenous acid, gr. 1/500. We see that a good wholesome diet is provided, including plenty of whole sweet milk, one hard boiled egg a day with butter, raw beef depending on the size of the dog, rice, shredded wheat, toasted bread or any nourishing table scraps and canned food, we recommend Swift's Silver Fur Food in this condition.

Professor Hobday in his book, "Surgical Diseases of the Dog and Cat," recommends applying a saturated solution of tannic acid two or three times a day several consecutive days and removal of the warts by application of a silk ligature, which is applied and left *in situ* for 24 hours.

According to Stellwagon and Gaskill, in obstinate cases of warts, absolute cleanliness and regularity in treatment are essential to success.

J. G. Horning.

Houston, Texas.

Hemolytic Streptococci (Beta Type) in A Family Cow's Milk

By E. D. MERKLEY, Manhattan, Kansas
Kansas State College, Class of 1933

THE presence of hemolytic streptococci (Beta type) in cow's milk is fortunately seldom encountered. The following interesting case is quite important.

A five-year-old Aryshire cow was brought to the Veterinary Clinic of Kansas State College, Sept. 13, 1932, at the request of Professor Frick, after he had received the following history from a physician in Manhattan.

This privately-owned, family cow was the only source of milk for the owner and his family consisting of a wife, a boy eight years, a girl six years, and a baby two years of age. These children became ill from a disease characterized by a very acute high fever and consistent bloody diarrhea, which resulted in the death of the younger child. Among other causes, the cow came under suspicion.

The past history on this animal was very meagre as she had changed hands some two or three times in the past year. Each of the previous owners when questioned, stated that there was nothing the matter with this cow when he owned her and that neither animals nor humans had suffered ill effects from drinking her milk.

This was as would be expected, since no one would admit responsibility for selling a cow the milk of which had caused the death of a baby.

The following examinations and tests of the cow were made:

Temperature, 105.5° F.; pulse, 51; respiration, 27.

Mucous membrane, normal.

Conjunctivae, slightly congested.

Respiratory tract, digestive tract and genito-urinary system, normal.

Examination of the milk by Drs. Bushnell and Foltz, of the college bacteriology department, showed abundant hemolytic streptococci (Beta type).

Six plates in dilutions, from 1-100 to 1-10,000 of 1% rabbit-blood agar, were inoculated with milk, one hour after it was obtained. The plates were incubated for 24 hours at 38° C. The plates of rabbit-blood agar showed heavy growth and a definite zone of hemolysis occurred around each colony.

Microscopic examination showed the organism to be Gram positive and a count showed 100,000 organism per cubic centimeter.

The physician's examination of the fecal contents and a section of the child's intestines showed extensive presence of *Streptococcus epidemicus* (Beta type).

A portion of the milk was fed to an old cat and three kittens (three months old); no harmful results could be detected.

The milk was fed to a two-weeks-old calf, all he would drink. In twenty-four hours the calf showed a very severe bloody diarrhea, but in about 48 hours the condition was overcome.

Blood samples for the *B. abortus* aglutination test were found positive in a dilution of 1-100.

Physical examination of the udder revealed marked evidence of mastitis—hard, nodular lumps in each quarter. Milk from each quarter was tested by the thybromol test and showed negative reaction.

This cow was tubuculin tested with negative result. She was shipped to market for slaughter.

The factors concerned in this case would seem to incriminate the cow as the reservoir for the organism considered responsible for sickness and death among those consuming the milk. The legal aspects, the havoc that might have developed had this cow been in a commercial dairy make interesting conjectures.

Compound Fracture of the Femur in Fox Terrier

By DEETS PICKETT, Manhattan, Kansas
Kansas State College, Class of 1933

A COMPOUND fracture is one in which there is an external wound exposing the break of the bone. Some of these may lead to very serious complications due to infection and the difficulty of applying splints and other materials to hold the limb immobile and at the same time allow for drainage from the wound. Callus formation, however, is more rapid in compound than in simple fractures, because in the former, the embryonic tissue between the fragments undergoes ossification at once without intermediate formation of a cartilaginous callus, as is the case in simple fractures.

Every practitioner, sooner or later is called upon to treat a compound fracture. Each usually has his own methods of taking care of these conditions, but very often, his ingenuity is taxed to the utmost.

A six-month-old fox terrier, that had been run over by an automobile and left lying in the street unable to rise, was presented at the Veterinary Clinic of the Kansas State College. Examination revealed a transverse fracture at the extreme distal end of the femur with an opening through the muscles and skin, which permitted the broken end of the femur to protrude approximately two inches.

There was hemorrhage from the lungs as shown by a frothy, bloody discharge at the nostrils, and the animal was slightly anemic. Respirations were shallow and the pulse rapid.

The patient was immediately anesthetized by injecting 2½cc of Nembutal (pentobarbitol-sodium) into the external saphenous vein.

The stump of the femur was cleansed thoroughly and wrapped with a piece of sterile cotton, saturated with a neutral flavine solution. Both sides of the leg and the area around the wound were shaved, cleansed and disinfected with a 1-1000 alcoholic solution of mercury bichloride. A hole was drilled through the femur stump about one-eighth inch from the end. The leg was then flexed as much as possible to enable the operator to return it through the opening to its proper position which was determined by the aid of the finger inserted in the flesh wound. Then a 3-inch, 16-gauge, hypodermic needle was passed from the outside through the skin and muscles, through the hole in the end of the bone and on out through the skin on the medial side of the leg, in the belief that the heavy muscles through which the needle was inserted would serve to hold the bone in place till callus formation occurred. The leg was extended and held in the proper position with wooden splints, cotton and muslin bandages.

The hole through which the broken bone had protruded was left open to allow for drainage.

By this time the patient seemed to be weakened considerably; having a very rapid, shallow respiration and a rapid weak pulse. Hemorrhage from the lungs was somewhat abated, but the mucous membranes were rather anemic.

Camphorated oil, 5cc, was given intramuscularly, and the patient was placed in a room with a temperature of 100° F. It is advisable always in shock, or after extensive loss of blood, to keep animals warm. Artificial heat is almost always necessary. Heat is the most effective stimulant in such cases. It is also very important to see that they are kept as quiet and as comfortable as possible.

The dog was considerably brighter after two or three hours, and some color had returned to the mucous membranes.

The animal was returned home the same evening with directions to keep it comfort-

able and bring it back every two days for observation and treatment.

The condition yielded readily to subsequent treatment which consisted of cleaning and using antiseptics on the wound and applying new bandages when necessary. In seven days a callus had formed and the needle was removed. The dog has since regained apparently normal use of this limb.

THREE-TEATERS

There are but few dairy herds without at least one cow milking from but three quarters of her udder. And very often we hear the dairyman say "She's the best cow I've got, too." The cow only 75% efficient presents a serious problem to her owner for not infrequently the loss in production will be sufficient to turn her from an asset into a liability.

Loss of function in one or more quarters is most often due to mastitis, most commonly of streptococcic origin. The organism enters the teat canal from infected bedding or floors, or occasionally from the unclean hands of the milker. The infection actually appears to gain access more readily to the udders of heavy producers, possibly because of greater distention of the lacteal ducts and the resistance of the udder lowered through the added strain of heavy milk production. As the casual agent is a regular and apparently ineradicable inhabitant of dairy barns, mastitis is an extremely common infection, causing an economic loss of tremendous proportions when taken in the aggregate.

Early treatment is most important for, only by successfully combatting the infection before permanent changes in the glandular tissue of the udder take place, can there be any hope of return of normal function to the affected quarter. Any bactericidal agent used must be efficient against all types of streptococci, must possess high penetrability, but at the same time have no toxic effect upon the delicate mammary tissues. Since its recent introduction azamine has demonstrated its ability in my practice to measure up to these requirements. In aqueous suspension it is readily injected into the teat canal and can be safely left there for 24 hours without causing any toxic reaction. The udder should be completely emptied before the injection is made but the amount of azamine suspension the affected quarter will hold will be found to vary greatly in different animals, and even in the different quarters of the same udder.

In acute cases of mastitis first seen at their height there will often be so much inflammatory reaction present as to cause opposing surfaces to adhere to each other, thus wholly closing the lumen of the canal as well as of the tiny milk ducts, making the initial injection difficult and the amount of azamine suspension possible to be injected very small. The active bactericidal powers of this agent will, however, soon manifest themselves by a subsidence of the symptoms, and the capacity of the affected quarter will increase at each treatment. When the condition has not been allowed to go untreated until it has progressed to permanent tissue injury, complete recovery of function following the next freshening, usually can be expected. Symptomatic treatment—as hot applications and massage of the udder, regulation of diet, etc. —is carried out.

The economic side of veterinary medicine is more important today than probably ever before in the history of this generation. Often we are called only after the existing condition has progressed extensively, and for that reason, are repeatedly up against great odds. We must rely on dependable preparations to aid us in getting results under these difficult conditions, and my experience with azamine has shown it to be effective, and dependable, if properly used.

Canadaigua, N. Y. E. S. Brown.

The Modern College Clinic

By L. K. FIRTH, Manhattan, Kansas
Kansas State College, Class of 1933

THE average practitioner, unless he happens to be closely associated with a veterinary college, does not realize the practical education that such college is offering in its curriculum.

The veterinarian who graduated fifteen or twenty-five years ago, I am told, had little opportunity to use the high class equipment or to see the great variety of unusual cases and conditions, in all farm animals that the present day veterinary student has and much less participate in their treatment.

The following article is written to familiarize the veterinary profession with the fact that the present day student has abundant opportunity to apply and use his textbook knowledge in a manner that fits him in some measure to handle practical phases of veterinary practice before he graduates. By way of illustration I will cite the Veterinary Clinic of the Kansas State College, the one with which I am most familiar.

The clinic is conducted in one of the finest equipped veterinary hospitals in this country. The building is a beautiful structure, costing $125,000, in which the latest and most modern veterinary equipment may be found. In conjunction with this hospital clinic an ambulatory clinic is conducted which gives the student practical field experience without expensive equipment.

Sick animals from ninety other Kansas towns were brought to the hospital. This was usually on the advice of local practitioners, and therefore in the main were unusual or at least out of the ordinary cases. They afforded the students opportunity to see exceptional operations and the treatment of unusual cases. And to repeat there were altogether more than 10,000 animals in the clinic that year!

Summary of Clinic Work

In the college year of 1930-31 there were 10,015 cases treated in the hospital and ambulatory clinic, which included the following summary of cases:

Species	Ambulatory Clinic	Hospital Clinic	Total
Equine	155	268	423
Bovine 3,336		628	3,964
Swine 2,779		310	3,089
Canine, feline...	118	2,146	2,264
Ovine, caprine..	158	38	196
Fox, rabbit, etc..	3	76	79
Total 6,549		3,466	10,015

Student's Part in Clinic

Each day in the clinic one of the instructors in charge, lectures for a short time on some of the practical phases of the profession. These discussions include such subjects as: review of the various operations performed on the previous day; restraint; feeding and care of both small and large animals; medical treatment used; medical economics, and various other related subjects.

Clinic Cases.—One or two students with an instructor as supervisor is assigned to every case that comes into the hospital. The student is given a clinic case, "Out Case," record sheet that is filled out with all the necessary data. This material includes the owner's name, address and phone number, instructor and student in charge, species and sex of animal, history of the case, symptoms, temperature, respiration, pulse, tentative diagnosis, diagnosis, prognosis and treatment. When patients are left in the hospital "In Case" record sheets are kept for each patient, which is the same as the "Out Case" record sheet except that

there is a space given for daily symptoms and treatment.

Surgical Operations.—The student is not allowed to do any surgical operations on the regular clinic patient. Every student has opportunity to perform any of the minor or major surgical operations on "skate" animals. These operations are performed on all manner and species of animals. The student is also instructed and drilled in order to obtain a fair degree of efficiency in passing the stomach tube, examination for pregnancy, fecal examination, skin examination, as well as general routine nursing.

Postmortem Diagnosis.—Many animals from various sections of the state are brought in by the owners and veterinarians desiring postmortem examinations and laboratory diagnoses. The students assist directly in this work.

Ambulatory Clinic.—On ambulatory clinic, regular fees are charged. Here the students participate in a round table discussion of the case and what treatments might be used under the conditions.

Conclusion

Present-day facilities and practices allow the present day veterinary graduate thorough preparation in the professional and practical side of handling animals under varying conditions.

THE HORSE INDISPENSABLE IN WAR

Great Britain owes a debt to animals for the part they played in the War, and a few figures will make this clear:

The pre-war strength of the Home Army in horses was approximately 23,000. The strength in horses of the Expeditionary Force which mobilized and went to France was 53,000. During the first twelve days of the War 165,000 were requisitioned. Between August, 1914, and the middle of 1918, roughly 450,000 were bought in the United Kingdom and over 700,000 horses and mules were bought in the United States and Canada. The estimated number purchased throughout the War amounted to 1,361,000. At one period of the War the strength of animals on all fronts totalled over 1,000,000. During the four and a half years of the War in France 750,000 animals took part, and the total wastage from death, destruction and missing amounted approximately to 250,000. From August, 1914, to March 31, 1919, the total number of admissions to Veterinary Hospitals and Convalescent Horse Depots of the Home Command, and of the Expeditionary Forces in France, Egypt, Salonika and Mesopotamia amounted to 2,526,549, of which 78%, or approximately 2,000,000, were cured and returned to duty.

It is to be hoped that there will be no more wars, but it is inconceivable that any war could be conducted without horses and it is necessary therefore to maintain horses as part of our Armed Forces. To be prepared for war is perhaps the best deterrent of it. And yet, one can be justly proud of the achievements of animals in war. An outstanding instance, and probably without parallel in the history of all wars, of a rapid and sustained movement, was the advance on Jerusalem in 1917-18 of the Egyptian Expeditionary Force under Field-Marshal Viscount Allenby. By force of circumstances and military exigency some horses of the units engaged went without water for 84 hours, others for 77, 72, 68, 65 and 60 hours. It is a glorious and honorable page in the record of service of animals performing work under the most trying conditions of privation. It is quite certain that no mechanical substitute could have filled the rôle so successfully borne by animal flesh and blood.—Major General Sir John Moore.

STOPS VITAMIN D

Charging violation of the state law which prohibits adding any substance to milk, the Board of Health of Buffalo, N. Y., has ordered a local dairy to desist from putting into its milk material that contains Vitamin D.—*Hoard's Dairyman.*

CUTANEOUS EMPHYSEMA IN ADULT MALE TURKEYS

During the past two seasons observations on three cases of cutaneous emphysema in different flocks of turkeys have been made. The accompanying photograph illustrates the condition in one of the turkeys. The swelling in this case is confined to the neck and throat. In the other cases which were observed, the swelling was over the entire body, including the head.

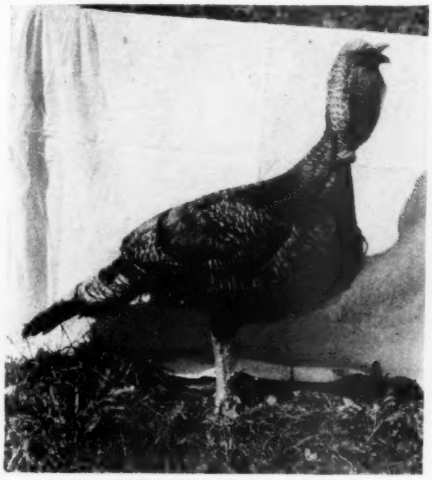

Fig. 1. One of the turkeys affected with cutaneous emphysema in which the swelling was confined to the neck. A healthy bird otherwise.

The birds which were swollen over the entire body appeared to suffer considerable distress because of the pressure. It is likely that unless punctures of the skin had been made and the pressure relieved, that the condition may have resulted fatally.

The swelling was due to a collection of air under the skin and probably was referable to a leak or puncture of the walls of the air system of the body, either an air sac or hollow bone or else was directly from the lungs. However, to explain the swelling of the neck and head only on this basis is purely theoretical, since the air sacs of the body are somewhat remote from the region of the head. The only other possible explanation might be that the air found its way upward beneath the skin to the neck and head.

Attempts to obtain cultures of an organism from under the skin were negative. All birds that were under observation recovered.

The treatment consisted in puncturing the skin at various points over body and pressing out the air. By repeating this process for several days there was a gradual receding of the swelling and in about two or three weeks the birds entirely recovered.

Fig. 2. A nearer view of the same bird showing details of the swelling along the neck.

Emphysema or wind puffs in chickens is a common condition occurring following caponizing and in some cases naturally in which similar conditions have occurred. The three cases mentioned, however, which occurred in turkeys constitute the only record that the author knows which showed this condition.

The fact that male birds only were affected might be explained on the basis of the fact that in strutting the pressure on the various air spaces of the body might be greater than in females and that a rupture would result and produce the emphysematous condition described.

A. J. Durant.

Columbia, Mo.

Contribution from the Department of Veterinary Science, Missouri Agricultural Experiment Station. Journal Series No. 359.

Pulmonary Calculi in Two Aged Bears

By CARL F. SCHLOTTHAUER, V. M. D.,* Rochester, Minnesota
Institute of Experimental Medicine, The Mayo Clinic

Two bears (*Ursus Americanus*), one black and one brown, were placed in the Rochester City Park as cubs in 1912. They lived to the ages of nineteen and twenty years, respectively. September 9, 1931, it became necessary to destroy the black bear because of chronic arthritis which made it impossible for him to get about. The brown bear died of natural causes August 19, 1932. It was my privilege to make postmortem examination of these aged bears.

Examination of the Black Bear

A careful search of all organs revealed gross pathologic changes in the thyroid glands, lungs, and testes. The thyroid tissue, as that of many other animals, appears in two lateral masses, and a definite isthmus is lacking in the adult. The two thyroid glands of this bear, together, weighed 32.5gm. The right was the larger. It was irregular in shape, and on cross section a large, bloody, cystic, encapsulated adenoma was revealed. This adenoma practically composed the whole lobe, for the remaining thyroid tissue was compressed to a mere shell beneath the capsule. The left thyroid gland was pale in color and regular in shape. On cross section colloid was grossly visible. Microscopic study of the thyroid glands disclosed that the adenoma in the right was fetal in type, and was undergoing colloid degeneration. It was similar to the fetal adenoma observed in dogs[1] and horses.[2] The left thyroid gland was of typical colloid type. The acini were large, and filled with dense colloid. The cells lining the acini were flattened. The walls of the acini were extremely thin.

Both lungs contained many irregular, bone-like calculi (Fig. 1). They were present in countless numbers throughout the lungs. The largest calculus was 0.8cm in diameter. These foreign bodies apparently had incited little tissue reaction for each was covered with only a thin capsule. On palpating the lungs the individual calculi on the surface felt as if they were composed of particles of sand. Whatever their origin, they were causing no apparent

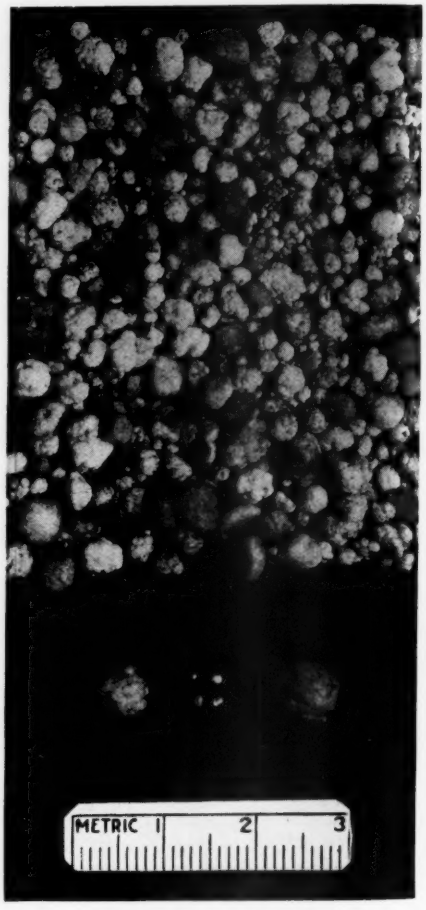

Fig. 1. Some of the pulmonary calculi removed from the lungs of the black bear.

*Assistant professor of VETERINARY MEDICINE, The Mayo Foundation, University of Minnesota. Submitted for publication March 2, 1933.

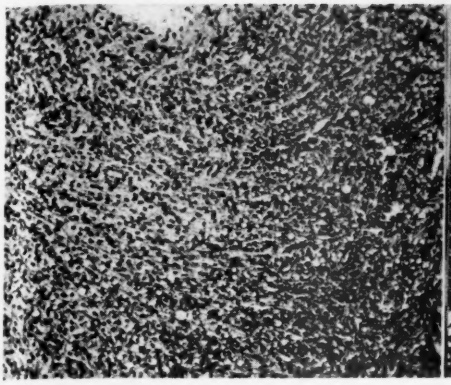

Fig. 2. Neoplasm observed in the right testis of the black bear. X 500.

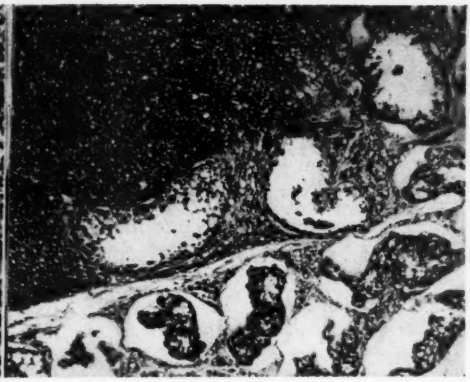

Fig. 3. Neoplasm observed in the right testis of the black bear. Tumor cells may be noted in seminiferous tubules adjacent to tumor. X 100.

physiological disturbance at the time of death.

On cross section, each testis was found to contain a small, definitely demarcated, light-colored nodule. That in the right testis was 0.5cm in diameter and was situated near the surface. That in the left testis was only 0.3cm in diameter and was in the center of the organ. Histologic study of these nodules revealed them to be composed of cells resembling the interstitial cell (Fig. 2). The cells were rather compactly arranged. There was little tendency to encapsulation of these neoplasms and many of the adjacent seminiferous tubules were filled with masses of tumor cells (Fig. 3). Because of the variance of opinions concerning these neoplasms, I prefer merely to refer to them as tumors of the interstitial cells of the testes. They were like a tumor observed by Feldman in an old dog.

Examination of the Brown Bear

There were gross pathologic changes in the gallbladder, liver, and lungs. The changes in the liver and gallbladder were of an acute inflammatory nature, and probably were contributing causes of death. The lungs contained the same kind of calculi as were observed in the lungs of the black bear. The calculi were present in about the same number, size and distribution. Little tissue reaction was observed.

Comment

The paucity of pathologic changes in these aged bears was surprising, for both animals had lived in unnatural, close confinement for long periods. Both bears were entirely free of internal parasites.

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Los Angeles has the best milk supply in the country and, at the same time, spends less per capita for inspection than any other large city.—Ann. Rept. Dept. of Health, Los Angeles.

THE MEEK SHALL INHERIT THE EARTH—SIX FEET OF IT

Among more than 20 private associations receiving appropriations from the last session of the state legislature in Illinois were:

State Dairymen's Ass'n.....	$11,400
State Vegetable Growers' Ass'n.	5,000
State Horticultural Ass'n.....	15,000
Illinois Firemen's Ass'n.....	2,000
Illinois Veterinary Med. Ass'n.	0,000

Reviews and Abstracts

By FRITZ VOLKMAR, Columbus, Ohio

Undulant Fever a Milk Borne Infection

In contradiction to Miessner, the author[1] finds that it is the consumption of raw milk and of products made from it which is responsible for undulant fever in man, and not contact with animal carriers. The pathogenicity of the germ and the morbidity of the disease are low. The preponderance of the disease in the male sex and during the ages from 20 to 50 years is explained on the basis of a difference in disposition rather than in exposure.

The beginning of the disease is usually indefinite, lingering, and seldom noticed by the patient. Even at the height of the disease, the patients, at first, do not feel sufficiently ill to call a physician. Exhaustion, rheumatism, chills, nocturnal perspiration are the first symptoms observed. They do not, however, hinder the patients from attending to their business.

One patient, a man 24 years old, checking his temperature on account of indisposition, was surprised to find a temperature of 39.5 C. It is the persistence of this fever which causes the patients to seek medical advice. Much time is lost, too, before the disease is differentiated. The rise and duration of the fever and the intervals between fevers vary a great deal. Intervals free from fever were rarely observed. A continuous remittent or intermittent fever, or a subfebrile course seemed to be the rule. The maximum daily temperature was usually reached in the evening.

The shortest duration of the illness was three weeks, the longest duration was five and one-half months, the average duration was two and one-half months. The most annoying symptom was the nightly perspiration, from which almost every patient suffered. One patient had to change his night garments 3 to 5 times nightly for several weeks. The nocturnal perspiration is interrelated to the nocturnal fall in temperature. Common to all cases was a relative retardation of the pulse. Spleen tumefaction could be diagnosed in 50% of the patients. Two patients had an enlarged liver; three possessed a positive Diazo-reaction. All patients showed a characteristic diminution of the number of white blood corpuscles and a relative lymphocytosis with maximum values of 68%. No relationship between the bloodfindings and the duration of the disease could be established. Over 50% of the patients complained about very intense neuralgic pains especially in the region of the N. ischiadicus.

A connection between Bang infection and the genital apparatus was present in two patients: one developed a painful swelling of the testicles; another experienced a distinct shortening of the menstrual periods during the five and one-half months of the disease. One patient had hemorrhoidal bleedings for the first time during the siege with Bang disease. Another patient, 18 years old, suffered extensive alopecia during the terminal week of the illness and during convalescence. Still another one exhibited a scarlatina-like exanthema at the beginning of the disease.

One case which ended fatally could not be followed up due to the refusal of an autopsy: "H.D.," 56 years old, veterinary surgeon. Early in November, 1930 he was bitten in the index finger by a dog, but went about his business of meat inspection. On November 12 he complained about chills and inability to work. The attending physician diagnosed influenza. Late in November, febrile icterus developed. The temperature ranged between 38° and 39° C. Enlargement of the liver could be palpated. The physician changed the diagnosis to severe infection of the gallduct and

[1] Fried, R. 1932 Zur Epidemiologie, Klinik und Bakteriologie der Bang'schen Krankheit. (The epidemiology, clinic and bacteriology of Morbus Bang.) *Zeitschr. f. Hyg. u. Infektionskrankh.* 114(3):429-455.

secondary insufficiency of the liver. On December 4, a blood sample was collected for examination for typhus infection. It gave an agglutination reaction of 1:1600 with Bang-bacteria. Death occurred on December 6 under the symptoms of a severe hepato-toxicosis.

There is all reason to believe that this was an occupational infection originating from the finger lesion. The incubation period would have been ten days. According to Loffler, the Bang infections of veterinarians are characterized by a most violent course. Whether the reason for this is a parenteral infection or an especially massed infection, is open to discussion.

When serologically unsuitable Bang-types are used for agglutination, the agglutination titre may turn out to be negative in positive cases of Bang infection. In clinically suspicious cases, the agglutination test is to be repeated when the reaction was weak in the first test. No relationship between the agglutination titre and the duration of the disease could be established.

Diagnosis of Pregnancy in Mares

In order to investigate the practicability of the use of infantile female white mice for the determination of the presence of ovarial hormone in the urine of gravid mares, the author[5] arranged 40 experiments on 15 pregnant and 18 non-gravid mares. The mouse-test proved positive in the urine-test of the 15 gravid, and negative in the urine-test of the 18 non-gravid mares. The mouse-test may be much simplified if three vaginal smears are made instead of five. The use of urine implies the danger that the white mice may die before the termination of the experiment and the completion of the test. Additional experiments on eight gravid and 18 non-gravid mares were made to determine the advisability of the use of the bloodserum instead of the urine. The mouse test is made more economical, simpler and more accurate when the mice are injected with bloodserum of gravid mares instead of with the urine. The biggest advantage of the use of the bloodserum is that the diagnosis of pregnancy may often be secured much earlier than could be obtained from the urine-test. In the experiments of the author, pregnancy in mares could be diagnosed as early as the 43rd to 51st day of pregnancy with the serum test, while with the urine test positive diagnosis could be made only after the 43rd to 100th day of pregnancy.

[5] Karmann, P. and Wiethoff, F. 1933. Die Feststellung der Trachtigkeit der Stuten durch den Mauseversuch. (The Aschheim-Zondek test in the diagnosis of pregnancy in mares.) Tierarztl. Rundschau 39(1):1-4.

Cycles of Bang's Disease

During the years 1924 to 1931 the author[6] followed the course of infectious abortion in a large herd of cattle which had been infected with Bang's disease since 1900, with periods of a high abortion frequency in 1902 to 1903, 1908 to 1911 and 1914 to 1916. In 1924 seven cases of abortion occurred, in 1925, 65 cases and in 1926, 105 cases. Since then the number has decreased fairly regularly and in 1931 there were only 14 cases.

The disease appeared in the herd in cycles of three separate stages, first an introductory stage lasting one year, secondly, a spreading stage of two years duration and thirdly a retrogressive stage which has now lasted five years.

The author considers that the retrogression of the disease was due to acquired immunity and loss in virulence of the bacilli. Treatment with dead vaccine was found to be injurious to infected animals and to increase the percentage of abortions, but it seemed to immunize the non-infected animals to some extent.

In infected herds all the animals should be given dead vaccine at the same time and, after some immunity has been acquired, this should be followed up by a dose of a weak, well-known live culture vaccine to the cows which are not pregnant.

The isolation method, based upon reg-

[6] Wall, S. (1932). Den smittsamma notkreaturskastningens forlopp i en storre besattning. (The Course of Infectious Abortion in a Large Herd of Cattle.)—*iSkand. Vet.-tidskr.* 22. 153-199. 13 tables.

ularly repeated blood tests, can be employed to advantage during the early stage of herd infection and in later stages when the disease is retrogressing.—N. Lagerlof (Stockholm) in *The Veterinary Bulletin*, 3:1.

VACCINES IN BANG'S DISEASE

The author[3] traces the history of attempts to control bovine contagious abortion in Denmark. The disease was first made notifiable in 1920; the law was revised in 1927 and compels cattle owners to isolate all bulls, cows and heifers for a certain time after a case of abortion has been observed. The animals may not be sold for meat and must have no contact with other herds.

Free diagnostic work in connection with the disease is done by the State Veterinary Service and the entire control scheme in Denmark now hangs on the regulations outlined above. Considerable work on vaccination has been performed in Denmark for many years and the author makes frequent reference to this, but unanimity on the value of vaccines has not yet been achieved. Jensen is rather skeptical about the value of live vaccines and considers them overrated.—*The Veterinary Bulletin.*

Elimination of Ox Warbles

A royal[4] decree regarding the eradication of the ox warble fly in Sweden was promulgated on the 1st July, 1931. The recommendation of the decree may be adopted at will by an Agricultural Society's whole district or by part of it. Early in the spring, before the cattle are put out to graze, the owners are obliged to free their cattle from the larvae in the subcutaneous tissues of the back either by treatment with a suitable ointment or, if this does not suffice, by squeezing the larvae out.

Special inspectors, appointed by the agricultural societies, ascertain that the cattle are free from living ox warble larvae before they are allowed out to graze in the spring.—N. Lagerlof (Stockholm) in *The Veterinary Bulletin.*

Diet and Parasite Infection

Five dogs from 9 to 16 months old which carried a few hookworms[6] (*Ancylostoma caninum*) but were proved to have a very strong resistance to fresh infection, were placed on a special diet deficient in vitamins and important minerals. Egg counts which were made on the feces showed that the egg output of the worms present was greatly increased as a result of the deficient diet. A dose of 500 infective larvae was given to each dog and after the normal prepatent period the egg count was observed to rise to a high peak, showing that a rather heavy infestation had been acquired. On returning to the normal adequate diet the worms were quickly lost, the egg count dropped and the dogs speedily regained their good condition.

A second experiment was carried out on two ten-year-old dogs which were not carrying worms and had been proved to have a strong resistance to infection. These were placed on the deficient diet and at fortnightly intervals were given doses of 500 infective larvae. Eggs appeared in the faeces, the count rapidly increasing and 90 days after they were placed on the deficient diet the number given off per day reached 700,000 in the one dog and 900,000 in the other. The dogs were then returned to the adequate diet and, although the fortnightly doses of larvae were still continued, the egg counts steadily fell to a low level and numbers of worms were lost, showing that there is a definite correlation between dietary deficiency in dogs and susceptibility to infection with *A caninum.*—E. L. Taylor, in *The Veterinary Bulletin*, 3:1.

[3] Jensen, C. O. (1931). Ueber die Bekampfung des infektiosen Rinderabortus in Danemark. [On the Campaign against Bovine Contagious Abortion in Denmark.]—*Deuts. tierarztl. Wschr.* 39. 733-737.

[4] Stalfors, H. (1931). Kungl. forordning angaende notbromsens bekampande. [Royal Decree regarding Eradication of the Ox Warble Fly.]—*Svensk Vettidskr.* 36. 140-149.

[6] Foster, A. O., & Cort, W. W. (1931) The Effect of Diet on Hookworm Infestation in Dogs.—*Science.* 73. 681-683.

Parasites of Fur Bearing Animals

These papers[7] were presented at the sixth meeting of Workers on Diseases of Breeding Animals held at Leipzig in October, 1931.

Richter gives a brief statistical review of the silver fox industry in Germany. There are now about 800 farms in the country. Fertility is about 75 per cent of all matings and during the years 1926 to 1929 about 2,000 young were born of which some 23 per cent died before maturity, the large majority when newborn.

Sprehn, whose experience of fur animals included during the years 1927 to 1929 professional care of 675 silver foxes, 448 minks, 90 nutria and 30 raccoons, gives a description of the commonest diseases.

Infestation with *Toxacara canis* is the commonest cause of illness of young foxes; other nematodes found in these animals are *Uncinaria stenocephala, Crenosoma vulpis* and *Eucoleus aerophilus*: coccidia (*Isospora canivecolis*) cause some disease. Salmonella infection occurs sporadically.

Minks are sometimes infested by the trematodes *Euryhelmis squamula* and *Troglotrema acutum.* Other parasites encountered are *Capillaria entomelas* and coccidia. Salmonella infection has been reported in minks.

Nematode infestation occurs in raccoons and distemper is a cause of loss.

Coccidiosis and infestation with *Strongyloides* and *Trichostrongylus* spp. have been observed in beavers.

The author discusses the treatment of all these conditions; hygienic measures play a large part in control.

In discussion on the paper, Sprehn pointed out the dangers of using market meat or meat from knackeries, as bacterial infection has been introduced to fur animal farms by such practice. Scheunert advised that meat should be cooked, von Ostertag suggested the use of the flesh of old cows instead of horseflesh. Sprehn stated that the ear mite, *Otodectes cynotis,* is common in captive silver foxes. Sarcoptic mange caused by *Acarus siro* also occurs and mange (*Notoedres cati*) had broken out on one farm. —J. E., in *The Veterinary Bulletin.*

[7] Sprehn, C. (1931). Die parasitaren Aufzuchtkrankheiten bei Pelztieren und ihre Bekampfung. (The Control of Parasitic Diseases Incident to Breeding in Fur Animals.) *Deuts. tierarztl. Wschr.* 756-758.

Treatment for Strangles

The opportunity of studying the disease was afforded the author[10] while holding the appointment of veterinary officer at the Mona Remount Depot, in the Punjab, India. A large number of young horses and mules are collected annually in this depot and remain there until about four years of age. The disease has been a most troublesome one for many years, being responsible for a large number of deaths and, in recovered cases, to a considerable loss of efficiency due to debility and affections of the respiratory organs, such as broken wind and roaring.

Efforts made by previous veterinary officers to deal with the disease are reviewed and it appears that the only method which had met with any success had been the early isolation of affected animals.

The anatomy and pathological changes of the pharynx, gutteral pouches, etc., are detailed at some length, as also are the usual medicinal agents employed. The author claims that intratracheal medication gave consistent and satisfactory results. Two mixtures were employed:—

(1) Oil of eucalyptus, guaiacol and chloroform, of each 2 drachms; turpentine and oil of sesame, of each 1 ounce.

(2) Iodine 1 part, potassium iodide 5 parts and distilled water 100 parts.

The dose of each is from 5 to 15 c.c., injected between the tracheal rings as near to the cricoid cartilage as possible. It is most essential that none of the medicament be injected subcutaneously as if this occurs abscess formation is almost certain to follow. To avoid this the needle is washed out with a little distilled water or normal saline solution be-

[10] Arnold, T. F. (1932). Strangles. Part I. Clinical Observations.—*Jnl. Roy. Army Vet. Corps.* 3. 65-74.

fore withdrawal. The first mixture had a profound influence on nasal catarrh and the second on affected glands.—C. J. R. Lawrence, in *The Veterinary Bulletin*, 3:2.

The Obliteration of Bursæ

Reading[11] in medical literature of the beneficial results obtained by injections of sodium morrhuate as a sclerosing agent for obliterating bursæ, varicocele, etc., it was decided to try its effect on similar conditions occurring in the dog.

Sodium morrhuate in 5 per cent solution was used in all cases.

The method of procedure is straightforward—the sac is evacuated by means of a small trocar the cannula or by means of a needle attached to an aspirating syringe. After withdrawing the fluid the cannula or needle is left in position and an equivalent amount of solution injected. The sac is afterwards lightly massaged.

Case 1.—A greyhound suffering from an enlarged superficial bursa at the point of the hock. The bursa was roughly the size of a walnut, painful, and interfering with the mobility of the joint.

The fluid was replaced with 3cc of solution.

Result.—The following day the bursa and the tissues around were considerably swollen and painful. This disappeared, however, in 2-3 days. In 10 days the bursal sac was completely dispersed.

Case 2.—A greyhound with a swollen bursa at the point of the elbow. Five cubic centimeters of the sodium morrhuate solution was injected.

The result resembled the previous case in every respect.

In the case of mucoid cysts the injection of sodium morrhuate apparently is ineffective. The author reports one such case as follows:

Case 1.—A greyhound, three years old, with an extensive mucoid cyst situated superficially between the angles of the mandible.

The contents of cyst, amounting to 30 cubic centimeters were aspirated and replaced with 10cc of sodium morrhuate solution.

Result.—The cyst enlarged to about twice its original volume, but gradually receded practically to its original size.

The operation was repeated with similar unsatisfactory results. Eventually the cyst had to be removed by surgical means.

Conclusion. — Though the number of cases treated is very limited, the employment of sodium morrhuate solution for the dispersion of bursæ is encouraging and worthy of further trial; for mucoid cysts, apparently it is ineffective but further trial is necessary for a definite conclusion.

Bang Disease Transmitted to Cows from Milker

The author[8] made blood tests of all the animals in a large herd of cattle in which infectious abortion was unknown and obtained negative results in every case. Five months later a cow aborted and the case was diagnosed as Bang's disease. Some time later another cow aborted and, eight months after the first case of abortion, six of the herd of 53 animals showed a positive blood reaction. The herd had been protected against infection in every way and the author considered it quite impossible for infection to have been conveyed to the farm through direct or indirect contact with other animals.

On further investigation it was found that five months before the occurrence of the first case of abortion, a new milkmaid had been employed on the farm. Some months earlier she had spent a long time in hospital suffering from undulant fever. She was still being treated for anemia and one year after the first attack of the illness she had a relapse while on the farm. The author is of the opinion that the source of infection in the herd

[11] Davies, J. J. 1933. The Obliteration of Bursae; *The Veterinary Record*, 13 (N.S.) 8, 152.

[8] Hulten, O. (1931). Undulantfeber hos manniska—infektionsrisk for notkreatur? (Undulant Fever in Man, Risk of Infection for Cattle?)—*Svensk Vet.-tidskr.* 36. 208-213.

was to be found in the infected milkmaid. —N. Lagerlof (Stockholm), in *The Veterinary Bulletin.*

Aqua Destillata Therapy in Goitre

The action of distilled water varies according to the species and sex of the experimental animal.[14] In the main, the females are more sensitive to it than the males. In poultry it results in a degeneration of the ovary. In poultry and mice, no measurable change of the thyroid gland is observed. However, the growth of the mice in the first generation is severely retarded. After the third generation of the animals permanently watered with distilled water, normal growth takes place. Rats are most sensitive. As late as three weeks after the experiment, the females will exhibit a pronounced hyperthyroidism with the principal histological lesions in the thyroid gland. These lesions increase later in severity and simulate those of struma. Nevertheless, hyperplasia does not take place but hypotrophy of the thyroid gland. Growth will be retarded. Few animals become mothers; their litters will consist of 2 to 3 young, which will exhibit severe nanism. A second generation does not occur at all. All these conditions are related to hyperthyroidism, caused by the distilled water. On the basis of the investigation concerning the etiology of struma, the author considers the rat as an experimental animal, whose thyroid gland compares favorably to that of man in regard to the ability of reaction. The curative results achieved in man with the therapy of distilled water may also be explained on the basis of the increase of the function of the thyroid gland, which process, probably, is connected with changes in other endocrine glands. Therapy with distilled water may, therefore be tried in cases in which a temporary increase of the function of the thyroid gland is expected to bring favorable results.

[14]Konsuloff, St. 1932. Tierversuche uber die Wirkung des destillierten Wassers. (Animal experiments concerning the action of distilled water.) *Zeitschr. f. d. gesamte Exper. Medizin.* 85(5&6):614-622.

Bang Disease Cycles Affect Control Methods

The author[9] has followed the course of bovine contagious abortion in a number of herds of cattle, carrying out agglutination tests with the blood serum and maintaining individual history sheets. He has thereby come to the conclusion that for the control of the disease it is necessary to ascertain definitely whether the disease is in the early stage, whether it is advanced to the stage when it is spreading in the herds or whether it is retrogressing.

In the early stages, isolation and stamping out is to be recommended. In the spreading stage, inoculation of the whole herd simultaneously with a dead vaccine later followed by inoculation with a live avirulent culture is recommended; this causes a mild infection and according to the author shortens the spreading stage.

During the stage of retrogression it is possible, by means of blood tests and the slaughter of infected animals, to eradicate the disease. The author utters a warning against the use of the stamping-out method of eradication unless all possibilities of infection from outside are eliminated. The tables are of considerable help for those studying bovine contagious abortion.—N. Lagerlof (Stockholm), in *The Veterinary Bulletin,* 3:2.

Vaccination Breaks?

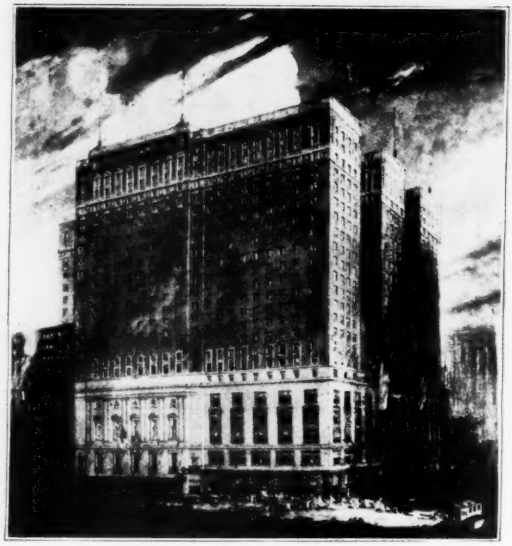
The author[13] vaccinated experimentally pigs by the simultaneous method and by giving hyperimmune serum alone, and then exposed these two groups to natural infection. He tested the degree of immunity acquired, by killing these pigs at certain

[9] Wall, S. (1932). Den smittsamma notkreaturskastningens utvecklingsskede, bestamt dels med hjalp av sjukdomsberattelsen, dels med hjalp av blodprov fran den smittade besattningen tagna 2 ganger i foljd med en manads mellantid melan blodprovstagningarna. (The Development of Bovine Contagious Abortion in a Herd as determined partly by Case Histories and partly from Two Blood Tests carried out at an Interval of One Month.)—*Skand. Vet.-tidskr.* 22. 257-270. 8 tables.

[13]Beller, K. 1933. Zur Frage des Vorkommens von Virustragern und Virusausscheidern bei der experimentellen Schweinepest. (The question of virus carriers in hog cholera.) Zentralbl. f. Bakt. etc. I. Ref. 108:334-335.

intervals from the time of vaccination and by feeding their organs, or injecting their blood into healthy pigs. In this manner virus carriers were demonstrated six times; they were found on the 27th, 31st, 37th, 44th, 60th, and 67th day after the immunization. Beller's explanation is that the persistency of the virus in the organs depends on the intensity of the immunity reaction. If the reaction is so weak that clinical symptoms will not be observed, then the incubation period lengthens until finally, after the third week, no disease will result. However, if the pigs, vaccinated by the simultaneous method, react with a high fever, then virus excretion will be observed as late as the 37th day and later. In another experiment the urine of pigs, vaccinated by the simultaneous method was injected subcutaneously into healthy pigs. Those that did not contract the disease were tested with hog cholera virus for immunity. The startling discovery was made that pigs slightly immunized against hog cholera will exhibit allergic reactions, characterized by a rapid course and by distinct postmortem lesions when revaccinated with virulent hog cholera virus. This anaphylactic shock took place likewise when hyperimmune serum was given together with the virus. Beller concludes that the simultaneous treatment will not protect pigs which have been sensitized against hog cholera. Confirmation of this observation will furnish a possible explanation for some vaccination breaks.

It may explain some unsatisfactory results in vaccinating young pigs farrowed by immune sows.



PALMER HOUSE—CHICAGO

Headquarters for the 70th annual meeting of the A. V. M. A., August 14-18, 1933. The A. V. M. A. convention in 1910 was held at the same site. The present building was erected five years ago and is one of the finest hotels anywhere. Its facilities for conventions are most complete; affording 77,000 square feet for meetings, banquets and exhibits, all air-conditioned—no sweltering from heat or disturbance from city noises through the sound proof walls. The Hotel is located in the downtown loop district of Chicago on State, Monroe and Wabash. The entrance is only three-fourths of a block from the intersection of State and Madison, the busiest street corner in the world and in the center of the world's greatest retail shopping district.

The general and section meetings, banquet, commercial and educational exhibits, registration and the clinic will be grouped all on one floor. Those attending the convention may all stay at the Palmer House if they wish. Two thousand rooms have been reserved by the local committee for their accommodation. The Grand Ball Room, where the general sessions and the banquet will be held, seats 2,400, and at tables 1,200, with room for 200 additional in the balcony.

The meeting this year will be a five-day meeting—Monday to Friday, inclusive—and all general meetings will be held on Wednesday. There will be only one night session—the President's reception and banquet combined. Alumni meetings will be held during the lunch hour on Wednesday. The Local Committee on Arrangements are planning for a total attendance of 3,500.

A veterinary clinic, including all domestic animals, held in a great metropolitan hotel will be an unusual feature of this meeting but perhaps no more unusual than the opportunity to have all sessions, registration, banquet and exhibits all grouped together on a single floor of one building.